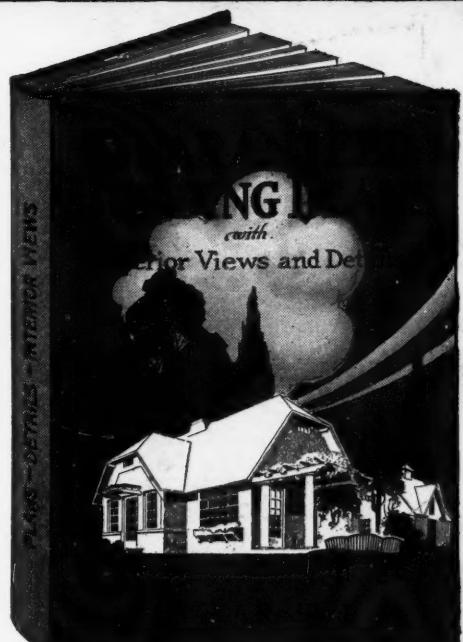


MAY 1915

AMERICAN CARPENTER AND BUILDER



THE WORLD'S GREATEST BUILDING PAPER



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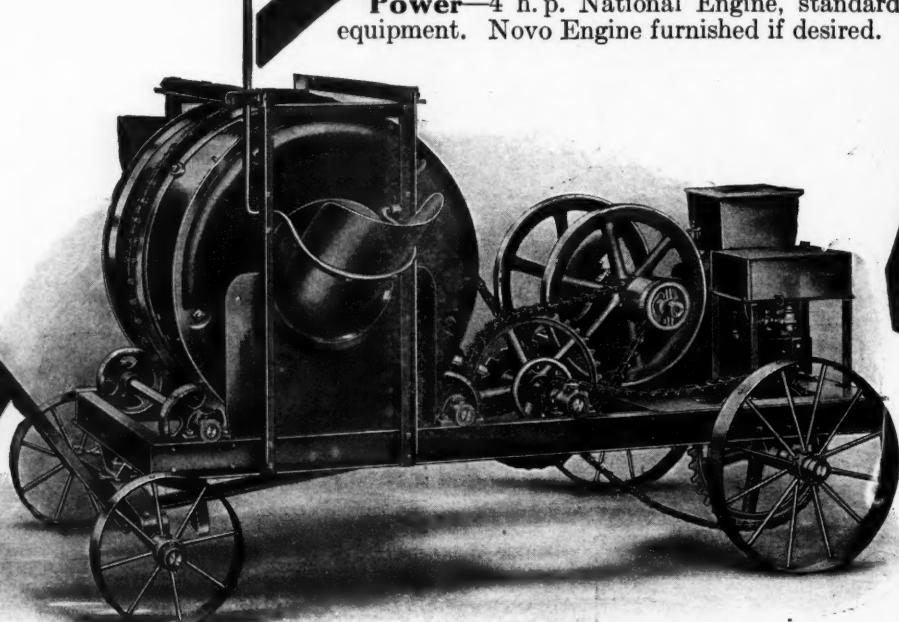
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It isn't necessary to hold any argument about the National Mixer—just consider the price—then read the specifications—then think of a 10-Day Trial Offer.

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How to Use a Plan Book

ESPECIALLY THAT NEWEST, BIGGEST AND BEST OF PLAN BOOKS, "GUARANTEED BUILDING PLANS"—IT IS UNLIKE ANY OTHER—AS IT FEATURES THE LATEST INTERIOR PHOTOGRAPHIC VIEWS AND CONSTRUCTION DETAILS, BESIDES 150 MODERN BUNGALOW AND HOUSE DESIGNS AND 50 FARM BUILDING PLANS.

SATISFACTION, fame and fortune are in a good Plan Book—properly used.

Notice those two conditions. It must be *good* and it must be *properly used*.

Now, what do we mean by "good" as applied to a Plan Book?

First, by all means, it must contain modern, up-to-date designs—yes, a big, generous selection of such designs—something to suit all tastes.

Second, the designs must be practical—planned by architects who have made a special study of medium-sized residence construction, and who know how to turn out house plans that are convenient, good-looking, and at the same time economical to build.

And third, this *good* Plan Book must be attractively illustrated with perspective views that look like real livable homes—that look cozy, inviting, and calculated to fan into flame that home-loving spark that is supposed to lie in every human breast. The floor plan diagrams, too, must be clearly drawn, plainly dimensioned, and pictured large enough so that any one can see at a glance exactly how the rooms are arranged and how large they are.

With such designs—modern, practical, good-lookers, convenient, planned by the best licensed architects—illustrated persuasively—printed on fine paper and bound in de luxe style, with three-color illuminated art covers,—ah, there you have a *real* Plan Book, and a *good* Plan Book.

Make It Earn Wages

Now that we have our Plan Book how shall we use it to get the biggest value out of it?

We will answer this question by telling you some of the

ways that other carpenters and builders are using good Plan Books to help them in their business.

The majority of people are short on imagination when it comes to planning a house or seeing with the mind's eye the house you are trying to plan for them. You can explain and explain and draw lines for them till you are black in the face, and still they don't get your idea for the "new house." But if you can run through a Plan Book containing a good collection of pretty designs—all rendered up so life-like, just as they will appear when finished—why then it is a cinch to pick out the favored style of dwelling, to find out exactly what is wanted; and then close the deal without further loss of time.

The builder gets the contract and the customer gets a better house and is better pleased, as he (or *she*, or more often *they*) knows exactly what the new home will be like when it is all finished and the shrubbery planted.

Thousands of contracting carpenters and builders are using good Plan Books every year in this way to interest prospective home builders, and to work them up to the deciding point.

It is bringing them business and is making money for them.

This is a big subject, too big for this column, so we will have to wait until next month to say more about it here.

Architecturally yours,

EDITOR AMERICAN CARPENTER AND BUILDER.

P. S.—Our new Plan Book, "Guaranteed Building Plans," will help your business and your reputation for building nifty houses—if you will give it a chance. We will give you a copy free when you send us your subscription now.

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REPUTATION

Do you specify a spring hinge with distinctive features which will appeal to your client and assure satisfaction to all concerned?



is of recognized merit and utility.

Send for Catalogue C 29. It fully illustrates and describes the most complete line of Spring Hinges manufactured.

Chicago Spring Butt Company

CHICAGO



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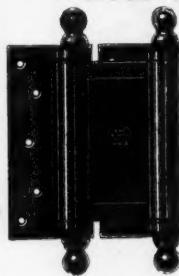
enough to pay for itself every two winters as long as the house stands.

Send for a Sample and Catalog

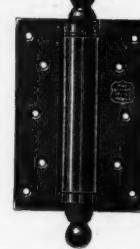
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Cabot's Creosote Shingle Stains; Stucco and Brick Stains, Conservo Wood Preservative.

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Facts are Stubborn Things



Don't Buy
SPRING HINGES
OF
OBSOLETE
CONSTRUCTION
ONLY



BOMMER Spring Butt Hinges

have the weight-supporting bearings correctly located to liberate the action of the springs, reducing breakage and increasing spring power, preventing unequal wear of the barrels, and giving practically unlimited durability. Bommer double-acting spring hinges open alike at both casings and both doors when both doors are opened.

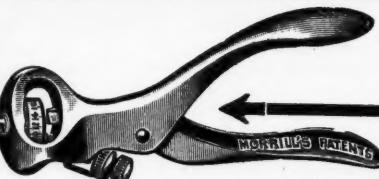
The carpenter can avoid guesswork and save time when hanging double-acting doors in pairs, as he can scribe and fit both doors of a pair from the same side of the opening.

YOUR HARDWARE MERCHANT CAN SUPPLY THEM
Bommer Bros., Manufacturers Brooklyn, N.Y.

Worth Much to You

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Saw Set



All master carpenters are using this Saw Set. In one operation it takes out the wrong set and puts in the right one. Write for FREE booklet "Saw Points". It tells how to properly joint, set and file hand saws.

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94 Lafayette Street
NEW YORK

USE METALLIC BATTEN STRIPS

for Vertical Barn Siding and other Buildings where Vertical Siding is Used

Far superior to wooden battens. They'll make your barns wind, rain and snow-proof. You'll notice the difference. Metallic Battens will keep your barns warmer and will last indefinitely. They also make a building much more attractive looking.



End View Showing Batten Closed

Pat. Feb. 18, 1913

Always
Tight

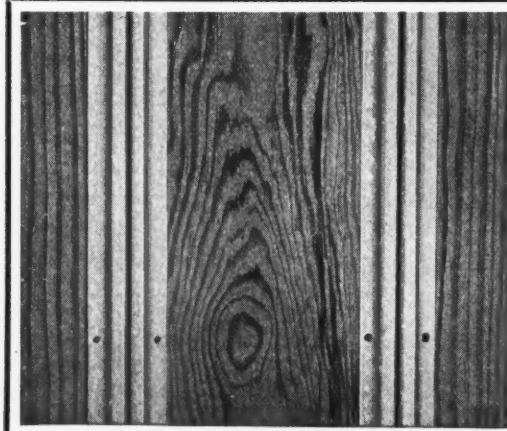


End View Showing Batten Open
with Seasoning of Timber

Metallic Batten Strips are always tight. They expand and contract with the siding. No Warping, Splitting or Drawing off. Metallic Batten Strips always lay flat and do not interfere with sliding doors. Put Metallic Battens on all your vertical siding buildings—Time will Tell. Also used successfully on Garages, Chicken Houses, Hog Houses, and makes Granary and Corn Crib Floors rat-proof.

Let us send you a FREE sample of this Metallic Batten Strip.

Metallic Batten Co., Owensville, Ind. Canadian Representative, Taylor Mfg. Co., Hamilton, Ont.





Member of the Audit Bureau of Circulations
Circulation Audited and Verified February, 24, 1915

**The
World's Greatest
Building Paper**

Important Notice

When your subscription expires, renew at once, using the blank enclosed in your final copy. If it expires with this issue your renewal must reach us before May 25, to avoid missing the June number. Use P. O. or Express Money Order if possible, but bills or 2-cent stamps may be sent at our risk.

**The
World's Greatest
Building Paper**

American Carpenter and Builder

Entered as second-class matter July 1, 1906, at the postoffice at Chicago, Ill., under the act of Congress of March 3, 1879.

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ADVERTISING RATES

Furnished on application. Advertisements, to insure insertion, should reach our Chicago office not later than the 15th of the month preceding date of publication.

PROTECTION FOR OUR READERS

The publishers of the American Carpenter and Builder will not knowingly publish any advertisement of a misleading character nor accept advertising from any individual, firm or company whose business methods are open to question.

We often receive inquiries from readers who desire information about concerns that formerly used the advertising pages of the American Carpenter and Builder, but are no longer doing so. They want to know if these former advertisers are still in business, if they can send them orders with the assurance that they will be filled, and a variety of other questions.

The American Carpenter and Builder will use every legitimate means to safeguard the interests of its readers and to protect them from fraudulent or unreliable concerns. Where the slightest doubt exists our readers should write the publishers for information. It may save them money, time and worry.

In all cases in writing to advertisers say: "I saw your advertisement in the American Carpenter and Builder."

VOL. XIX

MAY, 1915.

No. 2

Improving the Noon Hour

AS a general thing, builders have some leisure time every noon after the more or less full dinner pail has been disposed of. There are probably as many different ways of using this spare time as there are carpenters and builders working. Some ways don't amount to much, while others work out better than a college education for the ambitious builder.

It is really surprising how much can be learned in twenty minutes' thoughtful reading each day at the noon hour. Get into the habit and turn your noon hours to real account, 365 days in the year. With all the readable and instructive building trade books and journals now obtainable so easily, every one can do this.

One of our California subscribers has the idea, and works it in a way worth while copying. Here is his letter:

The Tool Chest Lid

To the Editor:

San Rafael, Cal.

Long ago I began to wonder how I might utilize the waste space in the lid of my tool chest. First I tried putting my saws in it. Then I placed all sorts of small odds and ends

in it on little clips—and had them forever falling out at inconvenient times. Next I put all my squares in it (or on it, under it—whichever is grammatically correct).

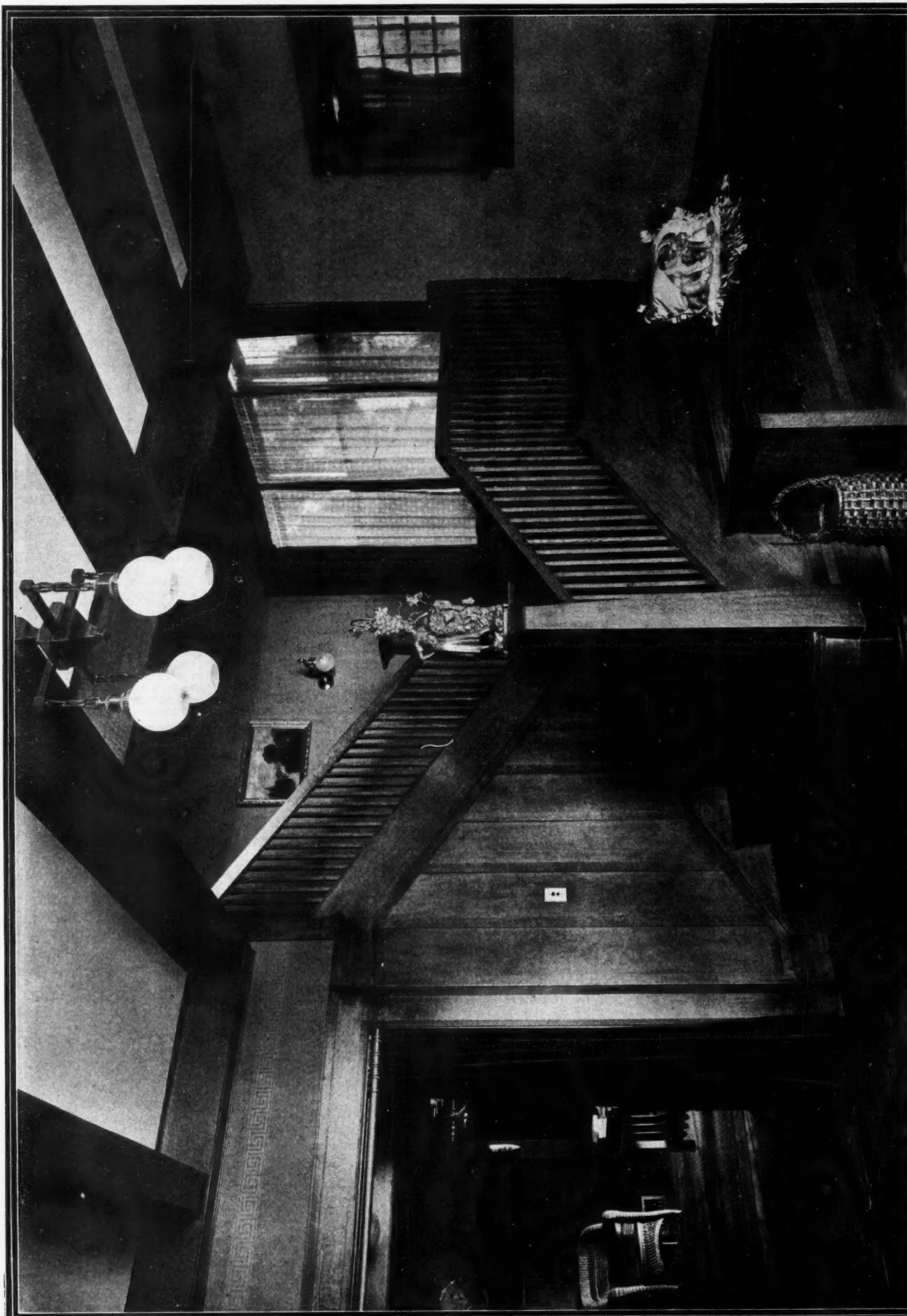
Finally I built a small compartment for tablet, pencils, and so forth. Later I added another for "Steel Square," Parts 1 and 2. That proved mighty handy. Many a noon hour was used profitably with these books, which otherwise would have been wasted. And somehow or other those things you read and study out right on the job seem to stay with you better than those learned at home.

It was this idea of making use of the noon hour that finally led to my making a compartment in the lid of my chest just large enough for three copies of THE AMERICAN CARPENTER AND BUILDER. It is 9 by 12 and 1 inch deep. The latest number I keep at home for evenings, but I always have three old ones in the chest.

Not long ago I told my four-year-old to get "Dad's magazine on the table in the front room." He came back with a copy of another periodical. I said, "That is not Dad's magazine." He pointed to the red covers of the one he held and said, "Wed ma'zine. Daddy's."

I love those old red covers and sincerely hope that the A. C. & B. will never yield to the trend of the times and make use of those gorgeous outrages that pass for "artistic" on the covers of some of our current magazines. Like my little fellow, I always look for the RED.

H. J. BLACKLIDGE.



Modern Reception Hall and Stairway Designed in the Heavy Timber Style. In Planning a Residence Assign Plenty of Space for a Broad Easy Stair, Preferably with a Landing on this Order. The Stairway is the Key to the Entire House and Should Not be Cramped. Note, too, How Well Lighted this Hall Is.

50 PRIZES

For Our Readers



First Prize	\$ 5.00
Second Prize	3.00
Third Prize	2.00
47 Prizes, each	1.00

Get Busy! Contest Closes Tuesday, May 25, 1915

THE AMERICAN CARPENTER AND BUILDER offers these 50 prizes to the 50 readers who write us on or before May 25th, stating which advertisement in this May issue of the AMERICAN CARPENTER AND BUILDER interests them most, and who give the clearest and most logical reasons why the advertisement selected is of interest.

Write a Short Letter to the Point

Short letters that contain real hard facts are best. Your letter should contain not more than 200 words. Set down plainly and in a straightforward way what advertisement in this magazine interests you most, and then tell the reasons why. We do not ask you to become literary, nor to write a letter that is not like you. We are offering these prizes in order to obtain first-hand, reliable information from our readers, and the prizes will be awarded, not because of the spelling or grammar used, but on the force and clearness of the reasons given.

Don't Overlook the Small Advertisements

In this contest the small advertisements are just as important as the larger ones. In picking the winners the judges will show no favoritism concerning the size or nature of the advertisement selected. The contest is entirely on your statement of the value and interest to you of the advertisement selected.

The American Carpenter and Builder Advertising Section the Market Place of the Building Industry

Study over the advertisements in this issue carefully. Get in the habit of going through all our advertisements thoroughly each month. A much greater number of concerns make their announcements in the AMERICAN CARPENTER AND BUILDER, than in any other building publication. Every one of these concerns is thoroughly reliable, and is offering his best goods at lowest prices to our readers. There is money in our advertising pages for builders. Every time you are in the market for any item of building material, building equipment, piece of contracting machinery or building mechanics' tools, refer to the advertising pages of the AMERICAN CARPENTER AND BUILDER. Our advertisers will save you money.

Study the advertisements in this issue. Post up on the new things. The chance is yours to be one of the 50 lucky ones to win a prize this month. You don't have to spend a

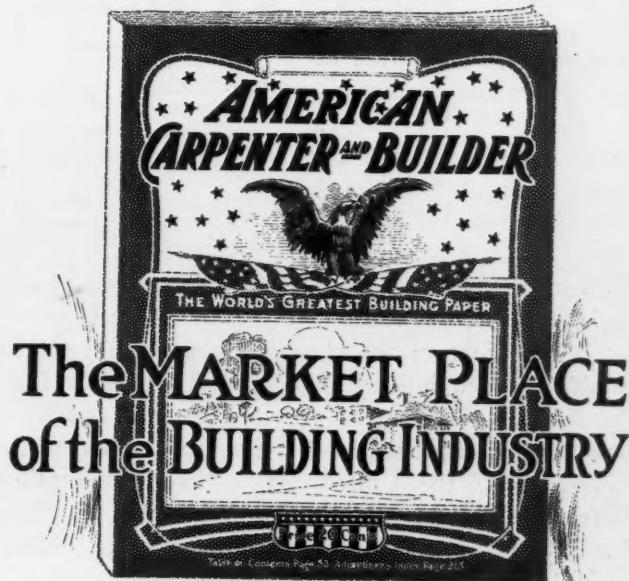
cent to enter this contest. You don't have to buy anything. You can win a prize by simply looking over the advertisements in this magazine, and then writing down a plain and interesting reason why some particular advertisement appeals to you.

Go through the advertising pages now. Look over each announcement carefully and pick out the one that interests you most. It may interest you because it advertises something you have been wanting for a long time, or something that will make your work easier or better; something that will help your business; something that will add to your pleasure; perhaps something that you can buy now at an extremely low price that you haven't been able to afford before.

Whatever the reason is, write it down in your own way, and send it before Tuesday, May 25th, addressed to the Advertising Editor AMERICAN CARPENTER AND BUILDER, 1827 Prairie Ave., Chicago.

Watch for the Winners—They Will Be Announced in the June Issue

On June 1st, the 50 prize winners will be mailed our "Advertised Merchandise Vouchers" which are good at full face value in exchange for any goods advertised in the AMERICAN CARPENTER AND BUILDER. You have 50 chances to win a valuable prize worth from \$1.00 to \$5.00.



BUNGALOWS ONLY



A Glimpse of Fillmore St. and of Georgia St., Gary, Ind., where Only Bungalows are Permitted.

BUNGALOWS Only" is the substance of the restrictions placed upon two beautiful residence streets in Gary, Ind., that city of many marvels of the builder's art. While the whole of the main residence sections of the city has certain commendable restrictions as to the erection of buildings, the purchasers of lots on these two streets must build bungalows only. The two story residence, even though it be ever so costly and pretentious, is not permitted. The ban is likewise placed upon flat buildings and apartments.

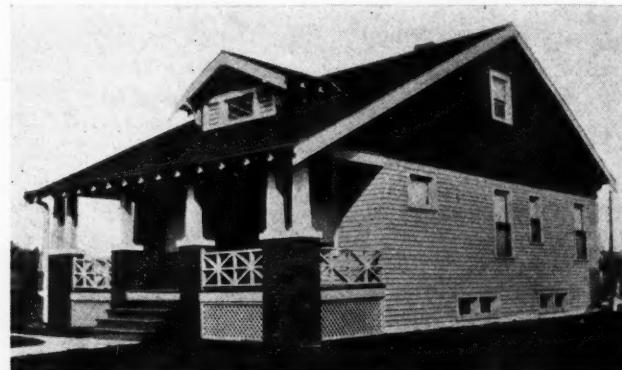
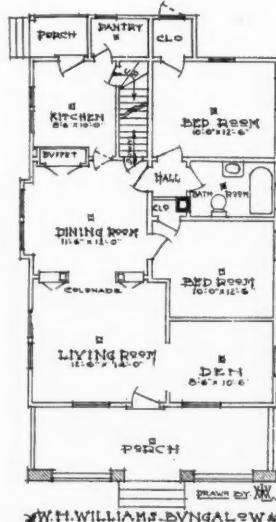
Fillmore Street, on the West side, and Georgia Street on the East side, are the two bungalow streets of Gary.

The two streets, which are each about one mile in length, were two years ago only a barren stretch of drifting sand. Today they are lined with modern bungalows, surrounded by beautiful lawns and the splendor of shrubbery and flowers. This transformation from barren sand to beautiful residence streets is typical of the whole of Gary, which six years ago was only a vast region of sand dunes and swamps.

As stated, "bungalows only," is the essential restriction for Fillmore and Georgia Streets. But there are also other restrictions. No bungalow can be erected on a lot less than 45 feet wide, which is 50 per cent more than the average city lot. The front of the structure must be set to the established building line, which is 35 feet back from the sidewalk. The plans for the proposed bungalow must first be approved by the Gary Land Company, a subsidiary of the United States Steel Corporation. Before the lots were placed upon the market, the Gary Land Company paved the streets, built the sewers, graded the lots and laid cement sidewalks.

The bungalow is a style of dwelling that demands landscape effects to give it a proper setting. Being strictly informal as to design, covering considerable ground area, but squat in appearance, and usually constructed of the rougher materials, its surroundings should be of flowers, vines, shrubbery and lawns.

In Gary, this proper landscape treatment is an undertaking of more than ordinary work and expense. When the lot is purchased, the owner has only so many square feet of sand, with patches of tumble weeds, sand cactus, and other troublesome and unsightly plants peculiar to this region. This discouraging feature is met by the civic pride of the builders, in covering the sand with black dirt, which is shipped in by the train-load; while trees and shrubs are set out in deep beds of rich soil. The photographs show how successfully



The Bungalow of Mr. W. H. Williams is Finished with Clapboards, Painted Yellow, Gable Ends Shingled and Stained Dark Brown to Match Brick Porch Piers.

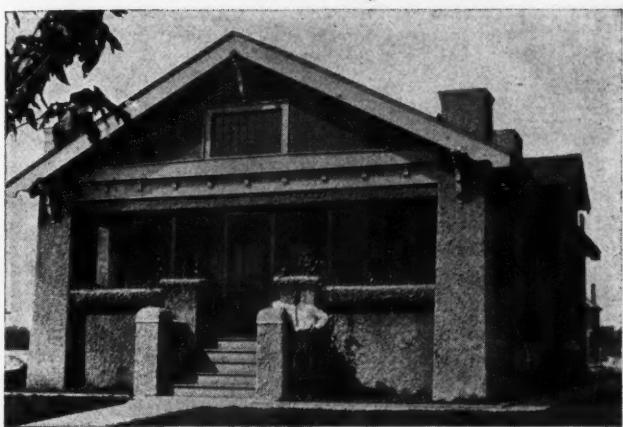
the builders have transformed the stretches of barren sand into streets of beautiful and cozy homes.

Much has been written about the bungalow as a dwelling. The limitless possibilities of design, the straight forwardness of plan, the frank accommodation of design to requirements, and the harmony with surroundings, are characteristic of the bungalow.

So the idea of having strictly bungalow streets has met with enthusiastic approval in Gary; and when all the lots are improved there will be approximately four miles of modern and attractive homes of the bungalow type along Fillmore and Georgia Streets.

Bungalows Only on Two Gary, (Ind.) Streets

41

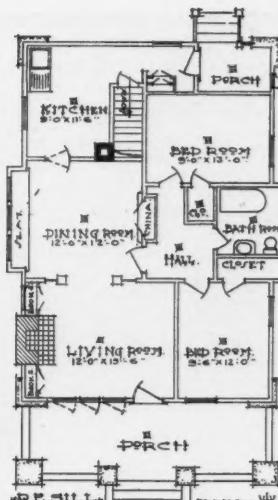


R. E. Sill's Stucco Bungalow Contains Five Rooms. A Novelty is the Continuing of the Corner Piers Up Through the Roof.

Three Gary Bungalows Described

The Sill bungalow, as shown by the accompanying plan and photograph, is one of convenient arrangement, and built of a combination of materials. The main exterior walls are of sawed surface white pine boards. The porch columns, and pilasters at the four corners of the house, are of cement stucco, which extend up through the roof and terminate by forming flower boxes. The porch balustrade is also of stucco and is capped by flower boxes. The fireplace construction is exposed on the exterior and is of rough colonial brick, with projecting headers at random. The casement windows, built-in bookcases, fireplace, and colonnade opening give a wealth of charm and comfort to the living room. The bay window, with southern exposure, the window seat, and the buffet are features of the dining room. The bay on the north not only gives the additional space required for the bath room, but adds much to that elevation.

The bungalow of Mr. Roy G. Parry occupies a corner site on Fillmore Street. At a glance the bungalow and surroundings, as a whole, appeal to the observer as one of delightful harmony. The shrubbery is



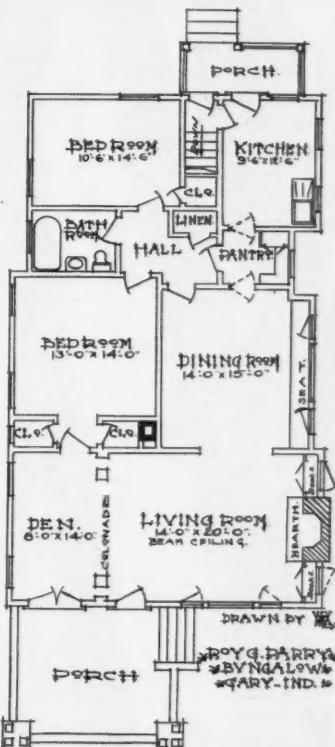
The Sill Bungalow Provides Five Convenient Rooms.

The clean cut lines, the plain design of the porch balustrade, dormer and rafter ends, and the color treatment, give to this bungalow a pleasing and substantial appearance.

The lower part of the colonnade opening between the living room and dining room is utilized for book cases. The den and dining room are visible from the living room through the wide openings, and thus lend expanse to the general interior appearance.

not so high or massive as to tend to dwarf the intended squat appearance of the house. The slight terrace in the lawn seems to suggest the appearance of elevation that would otherwise be lacking by not exposing any of the foundation construction.

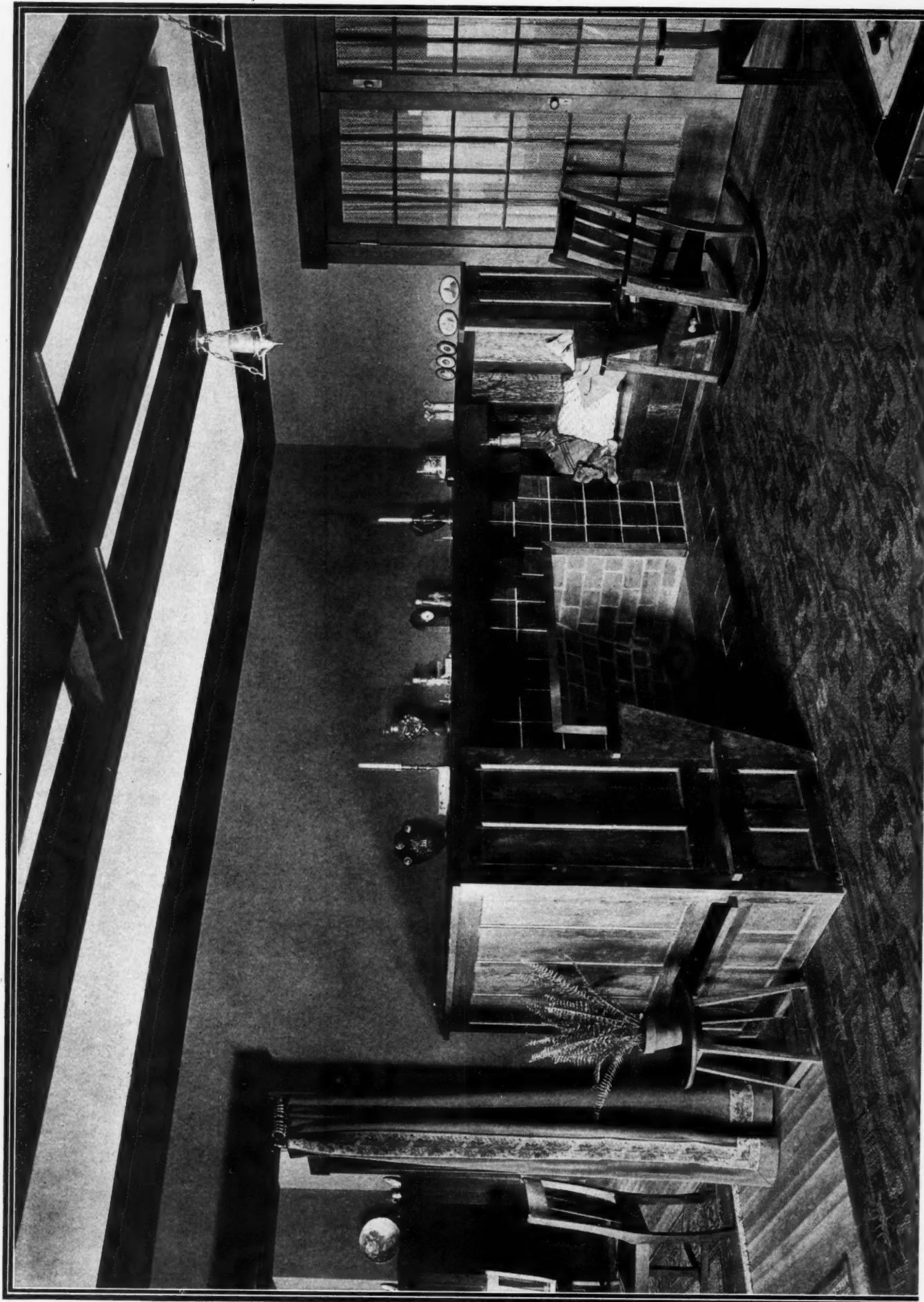
The Williams bungalow, from grade line up is of frame construction, except the porch piers which should be made of brick.



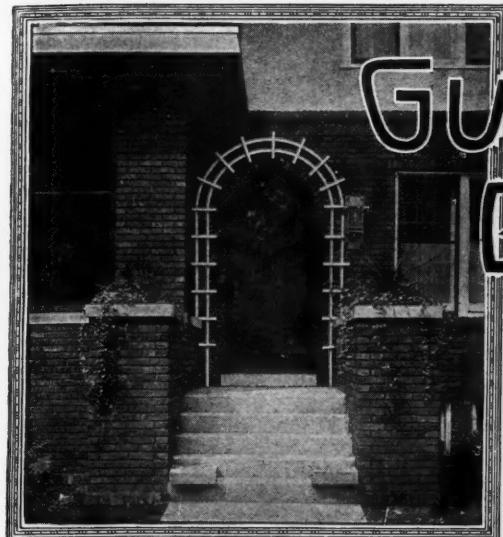
The Parry Bungalow Is Laid Out on Generous Lines for Comfort.



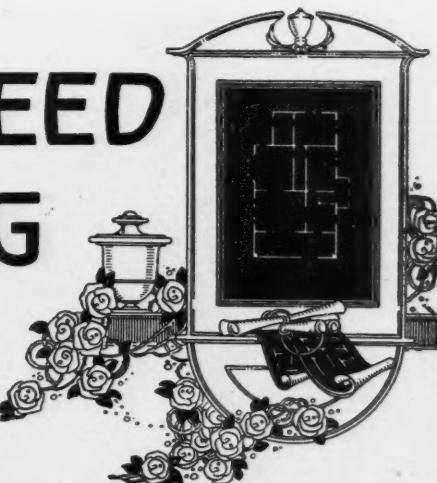
An Attractive Corner Site in the Gary Bungalow Colony is Occupied by the 6-Room California Type Dwelling of Mr. Roy G. Parry.



An Interesting Fireplace Nook with High Back Seats Built-In on Either Side of the Tile Fireplace. Any Living Room Containing this Feature is Bound to be Cozy and Homelike. Note Also Unique Idea in Ceiling Beam Paneling. The Double Full-Glazed Doors are also Good.



GUARANTEED BUILDING PLANS

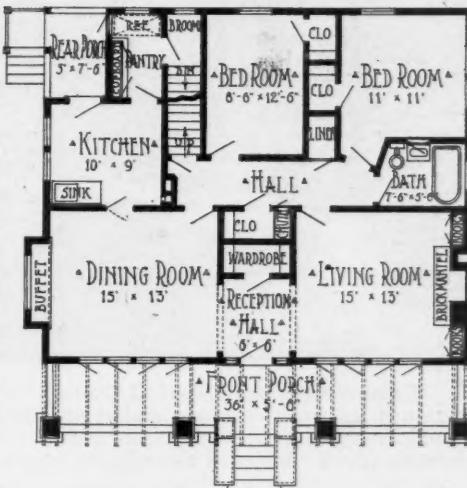


A Jewel of a Bungalow

The convenience of the room arrangement in the design shown here is one of its special features. The entrance is into a reception hall, which opens into the dining room on one side and the living room on the other through cased openings. The hall in the middle part of the house furnishes the key to the convenience of getting from one room to another. This hall opens into every room except the kitchen, and makes it very easy to get around from room to room. There is an ample basement in this design and also the attic is available for storage.

The attic stairs open into the hall mentioned, and the cellar stairs open from the kitchen.

The appearance of this bungalow from the outside is particularly pleasing. The sides are shingled and can be finished in dark brown while the trim is white. This presents a very pleasant contrast. A gable is built out over the porch near the front door with a pergola on each side. The pillars of the porch are made of cobblestones up to the top of the porch railing and above this they are shingled in harmony with the sides of the house. The effect of this porch with its trimmings of white is very artistic.



Floor Plan, Size 38 ft. by 31 ft. 6 in.



Artistic Bungalow of five rooms, 38 by 31 feet 6 inches. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$6.00 per set. Blue-prints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6681.



Compact Story-and-a-Half Cottage of Six Rooms. Size 28 by 29 feet 6 inches. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$6.00 per set. Blue-prints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6700.

Six-Room Story-and-a-Half Cottage

A story-and-a-half house of six rooms is shown in the illustration on this page and on the three pages following.

A feature of this design is the large rooms, though the house itself is not very large. The living room is 16 by 13 feet and has a brick fireplace built into it

at the end. The entrance into this room from the reception hall is through a wide cased opening and there are French doors leading into the dining room.

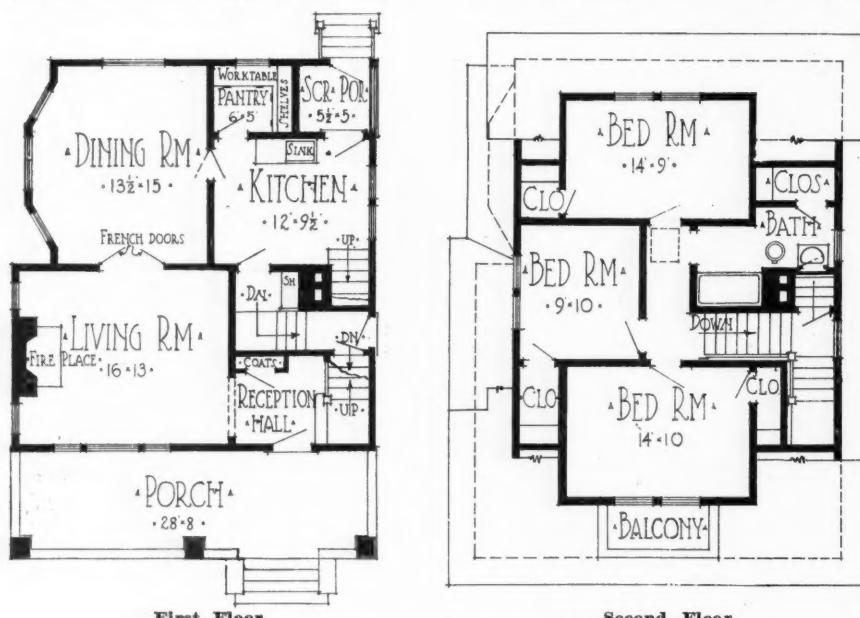
The dining room is perhaps the most attractive room in the house. On one side there is a wide bay window that extends almost the entire length of the room with a large window in the center

and a narrower one on each side. The walls up to the plate rail are finished in wall board or veneer panels having 3-inch stiles. There is also a wide window at the back of this room. All these features blend together to form a most pleasing and beautiful interior.

The arrangement of the pantry in connection with the kitchen will gladden the heart of the housewife. In this pantry we have a combination of maximum convenience and compactness with no crowding. The work table is in the end, with drawers underneath, and the cupboard is on the side, with a wide shelf on top of the floor bins and narrow shelves above. This presents an almost ideal condition with no walking around and everything in front of you.

There are three bedrooms on the second floor; one on the side; one in front; and one in the back. The front and back bedrooms are each built partly out into a dormer window. The front dormer has a balcony built out from it which adds to the appearance of the room and also looks well from the outside.

The exterior finish of this design is of clapboards up to the plate with the gables shingled. The roof dormer is also shingled.

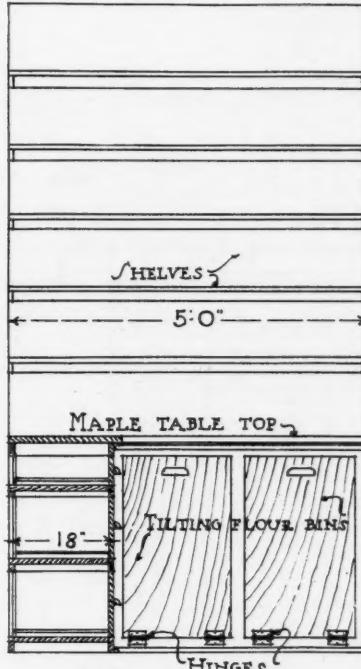


Arrangement of House, Size 28 ft. by 29 ft. 6 in.

For Interior and Construction Details of this House see Next Three Pages.



HEAD
CASING

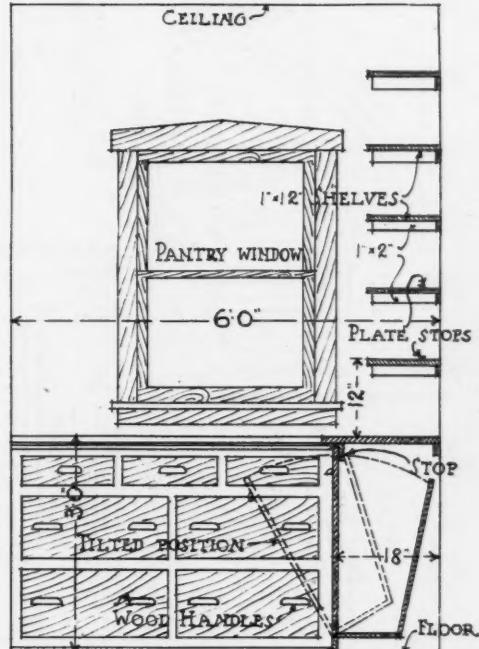


MAPLE TABLE TOP

18"

TI TLING FLOUR BINS

HINGES



PANTRY WINDOW

6'0"

PLATE STOPS

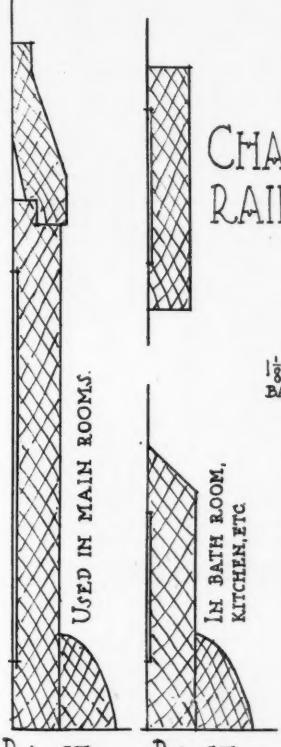
TOP

STOP

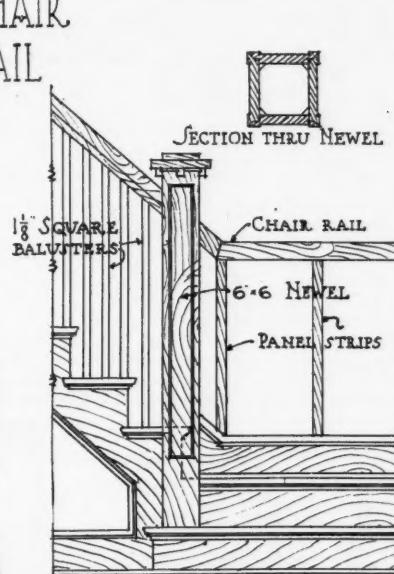
FLOOR

^ PANTRY ^ CUPBOARD ^ DETAILS ^

• SCALE $\frac{3}{8}$ = 1 FOOT •



CHAIR
RAIL



SECTION THRU NEWEL

1 1/8" SQUARE
BALUSTERS

CHAIR RAIL

6'6" NEWEL

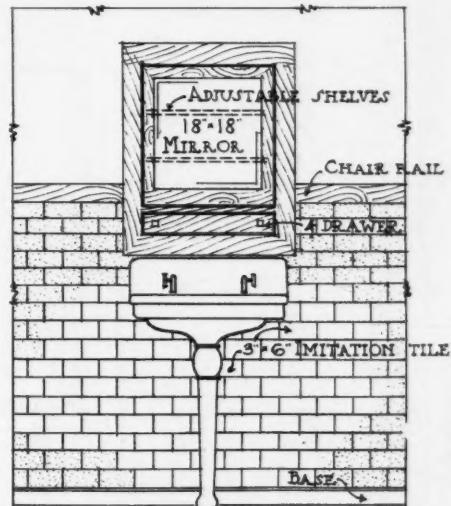
PANEL STRIPS

BASE

BASE

^ MAIN ^ STAIR ^ DETAIL ^

• SCALE $\frac{3}{8}$ = 1'0" •



ADJUSTABLE SHELVES
18x18 MIRROR

CHAIR RAIL

A DRAWER

3x6 IMITATION TILE

BASE

^ MEDICINE CASE ^

• SCALE $\frac{3}{8}$ = 1'0" •



3" CONCRETE

TILE FLOOR

BOARDING

FLOOR

JOISTS

^ SECTION THRU TILE FLOOR ^

• SCALE $\frac{3}{8}$ = 1'0" •



WINDOW
STOOL



SIDE CASING

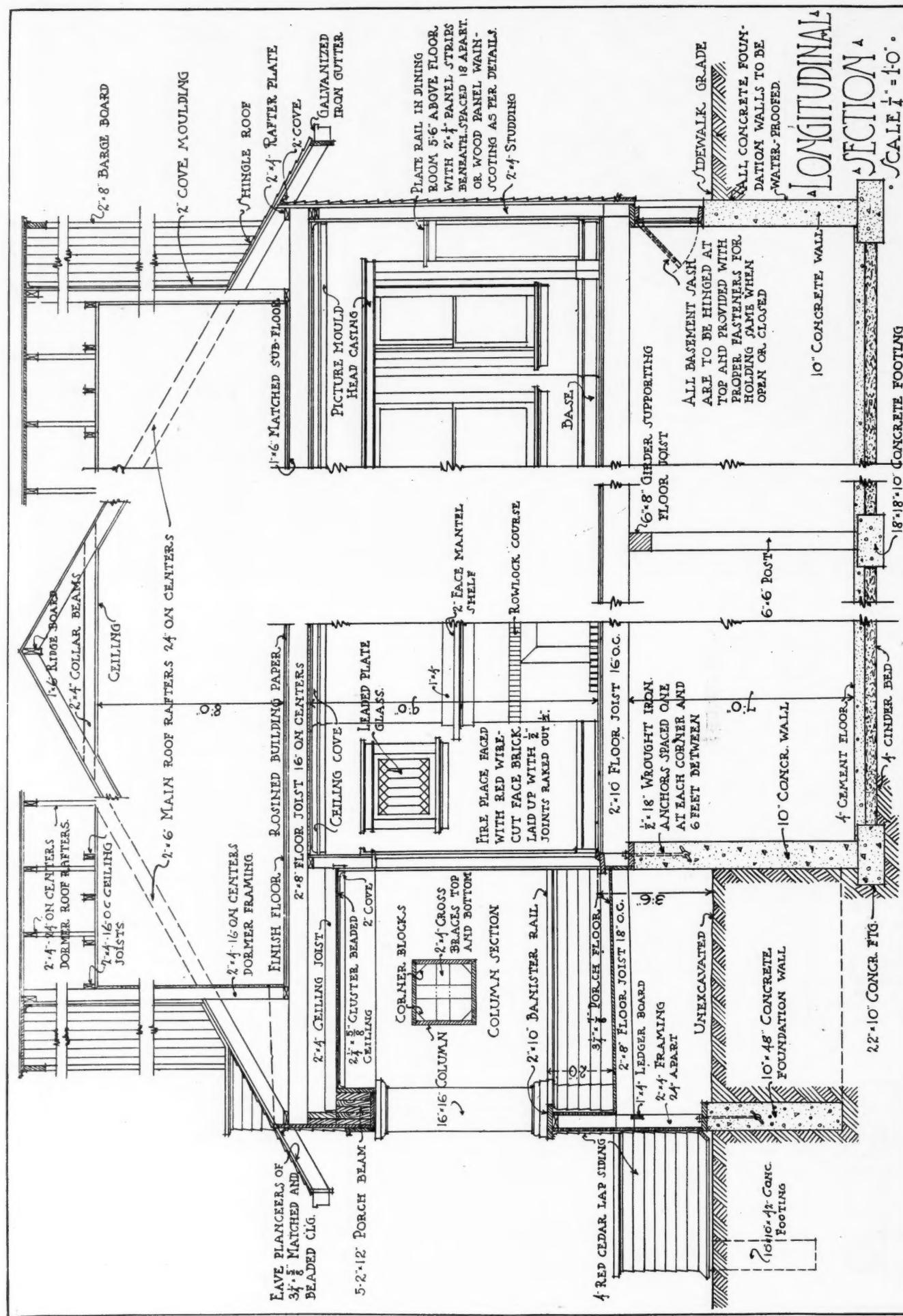


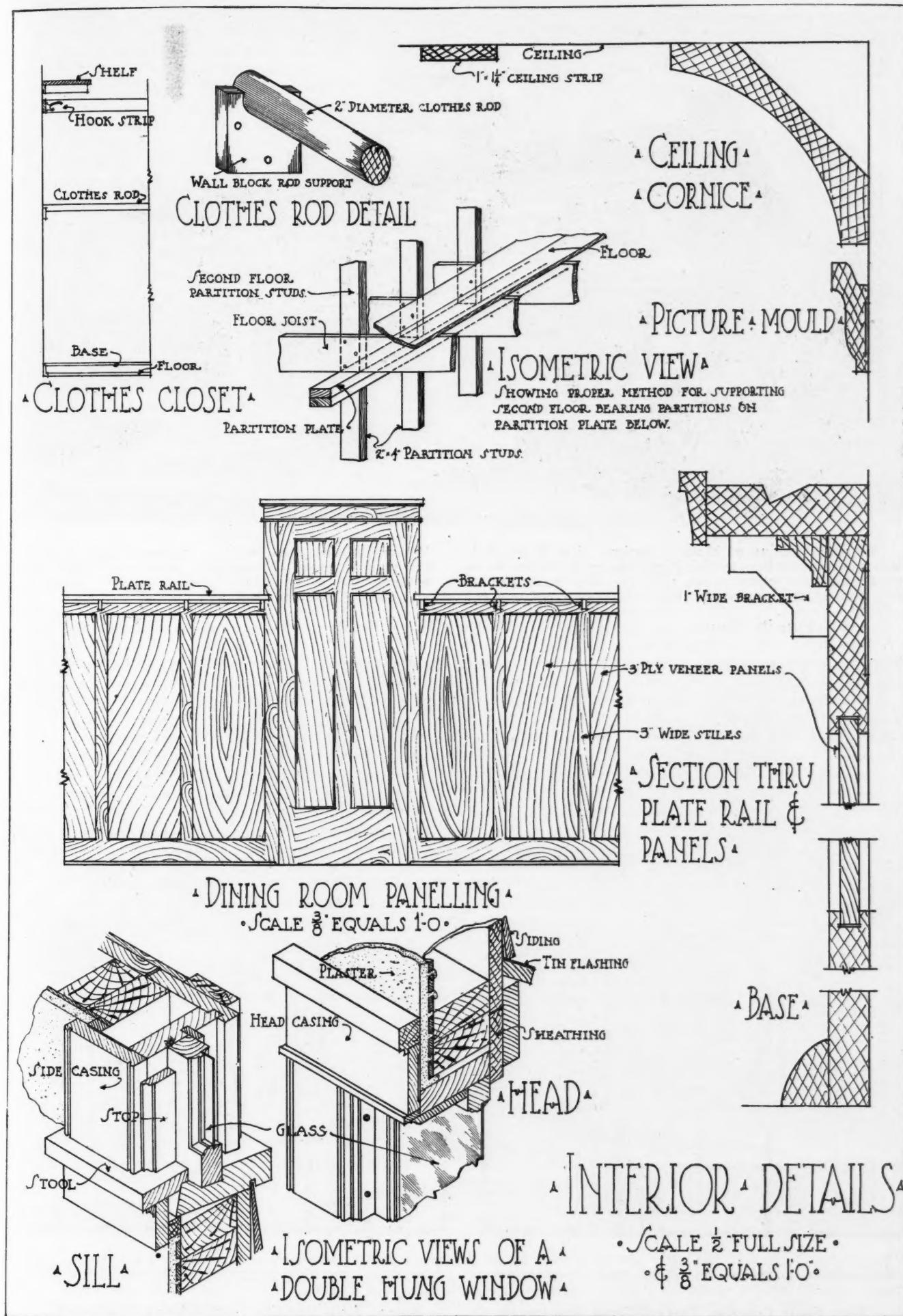
DOOR & WINDOW STOP

^ INTERIOR ^ DETAILS ^

• SCALE $\frac{1}{2}$ FULL SIZE & •

• $\frac{3}{8}$ EQUALS 1'0" •







Six-Flat Building of Modern Design. Size 83 by 46 feet. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$12.00 per set. Blue-prints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6704.

Six-Family House

A substantial brick building having three five-room apartments on the first floor and three six-room apartments on the second is shown in this design. It is of the well known Philadelphia type, and gives the appearance of quiet elegance. Its plain, simple lines and heavy construction add to the impression it gives of being dependable and comfortable. Such a building is ideal as a real estate proposition.

The flats on the ground floor have a small vestibule that opens into a large living room. There is a cased opening from this room to the dining

room. The kitchen is behind the dining room and there are two bedrooms; one opposite the dining room, and one opposite the kitchen. The bathroom is located between the two bedrooms, which is the best arrangement possible.

In the second story, the arrangement is much the same, except that another room is added by using for a bedroom the space that was occupied downstairs for the vestibule and the entrance to the upper flat. This makes the living room slightly smaller but it is still a good sized room. The rest of the arrangement is much the same—with two bedrooms, a dining

room, and a kitchen.

All the flats on both the first and second floors are well lighted. There are many windows on all the outside walls, as can be seen from the illustration. The lighting of the inside rooms is taken care of by two courts, which are cut into the building from the rear. These extend from the back of the building about half way to the front.

The porch and balcony have a very stately appearance from the outside and are arranged with the idea of being roomy and convenient.

The exterior finish is of face brick with white stone or terra cotta trim.



First Floor Contains Three 5-Room Apartments.

Second Floor Contains Three 6-Room Apartments.

Narrow Lot Stucco Bungalow

A bungalow of very striking and cozy appearance is shown in the accompanying illustrations. The most striking feature, from the outside, is the porch which is covered by the main roof and extends across the total width of the house. This gives the impression that the porch is built into the house instead of being detached, as most porches are. This is an effect that is very well liked by many people. The porch and house are built well off the ground, which adds to this effect and at the same time increases the size of the basement and makes it easier to light.

On the sunny side of this house are three rooms; the living room, dining room, and kitchen. On the other side are two bedrooms with a bath in between. There is a small reception hall as you come in from the porch. This has a door in the back, that opens into one of the bedrooms, and a cased opening on the side that furnishes the entrance to the living room. There is also a closet on the opposite side of the reception hall, from the opening going into the living room, for wraps.

The living room presents a very pleasing aspect as you enter. On the far side of the room is a brick fireplace of generous proportions. The fireplace is in the center of the wall. On each side of it are bookcases which extend to the end walls. Above each bookcase is a window, which can be



Floor Plan, Size 22 ft. by 45 ft. 6 in.

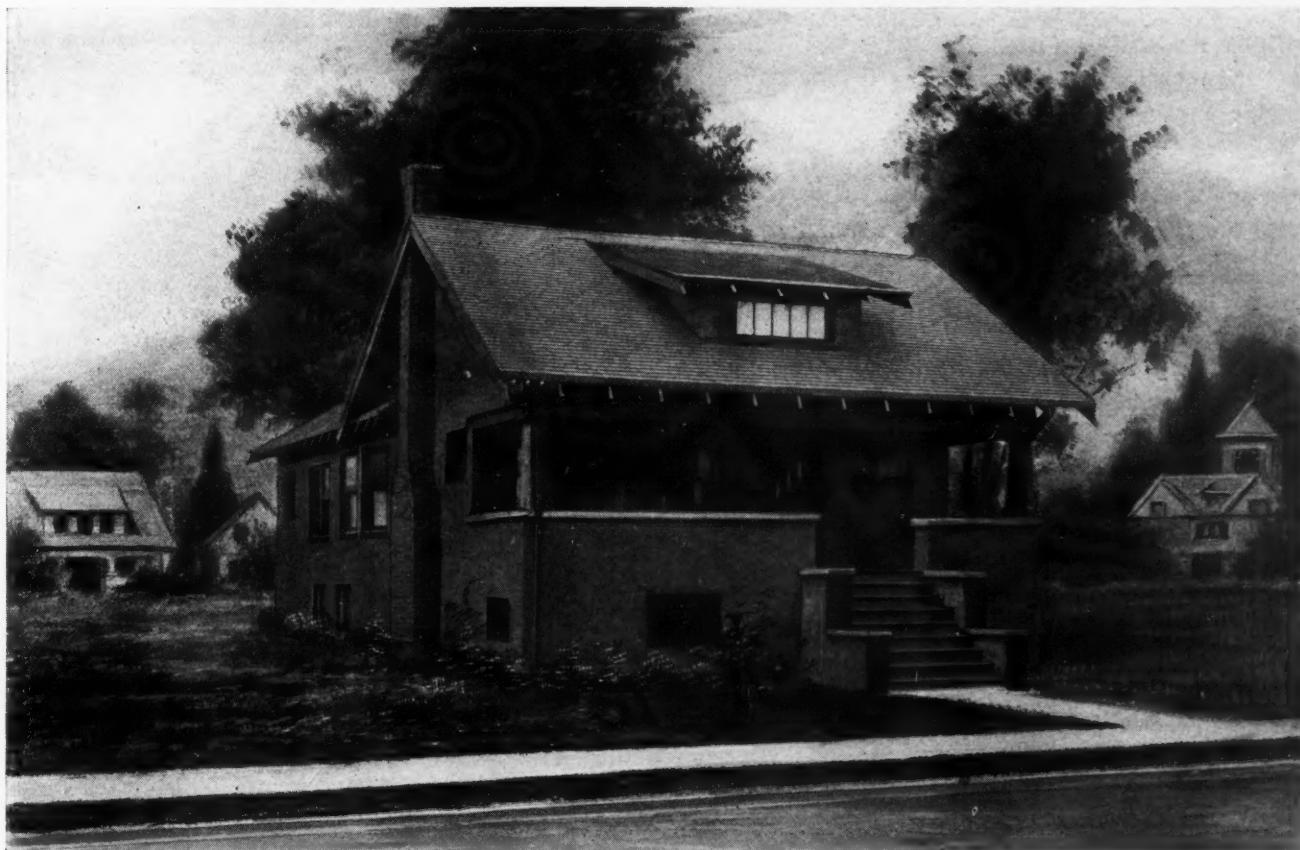
finished in leaded glass. The whole effect is very attractive and adds much to the beauty of this house.

The entrance to the dining room is through a wide cased opening from the living room, and the two rooms can be used together when the owner is entertaining. There are two windows opening into the dining room and opposite them is a buffet which is built against the wall.

The stairs to both the basement and the attic are in the kitchen. The basement is large and can be used in many ways. There is a storage room in the attic that will take care of the many things that everyone insists on saving and which are never used. There is a dormer window which provides light for this room. It faces the front of the house, as shown in the illustration.

The kitchen with all its necessary accompanying rooms is very well arranged. In back of the kitchen are two small rooms. One of these is used as a pantry and the other is an entrance from the porch. One of the modern conveniences so much in demand among housewives is shown in connection with the refrigerator. It is an opening from the outside so that the refrigerator may be iced without having the inconvenience of the iceman going through the kitchen.

This bungalow is particularly suited for a narrow lot, because of its width, which is only 22 feet.



Comfortable Cement Stucco Bungalow of five rooms, 22 by 45 feet 6 inches. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$6.00 per set. Blue-prints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6699.



Cement Stucco House of eight rooms. Size 22 by 45 feet 6 inches. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$9.00 per set. Blue-prints consist of basement plan; roof plan; first and second floor plans; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6695.

Eight-Room Cement Stucco House

Here is shown an eight-room, story-and-a-half house that is very comfortable and home-like. There are five rooms on the first floor besides three close up under the roof. There is also a big storage room in the back under the roof. This design is particularly well adapted to a narrow lot where a good roomy house is wanted.

On the ground floor, the reception hall opens into the living room on one side while the stairs to the second story are on the other side. There is a generous closet in the reception hall which will provide plenty of room for wraps. The entrance into the living room from the reception hall is through a cased opening. The dining room is back of the living room and has a seat on the side built into a window, which is a pleasing feature. The kitchen is back of the dining room. The stairs to

the cellar open into a hall in the back of the house. Both the bed rooms on this

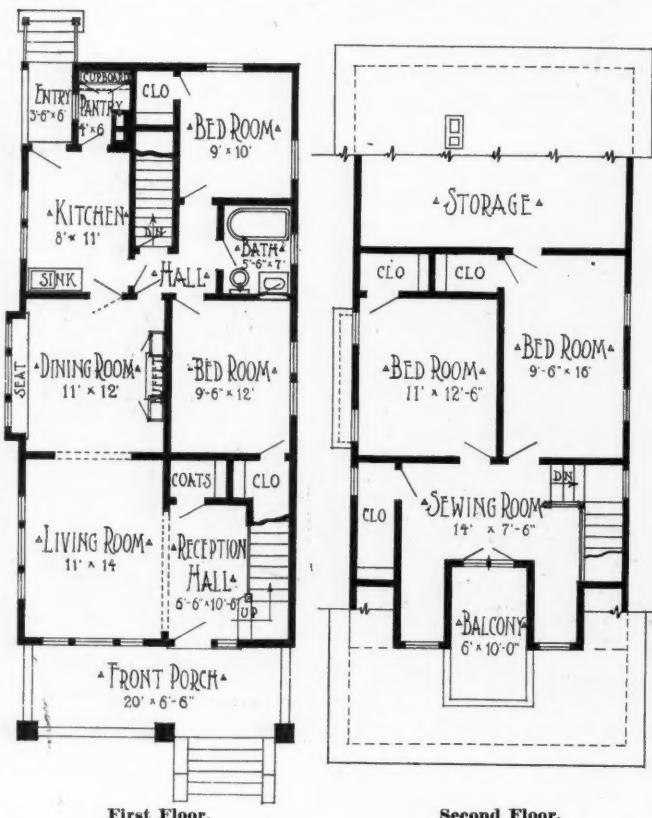
floor open into this hall, as does the bathroom which is between the two bed-

rooms. The basement is large and very well arranged.

The feature of the second floor is the sewing room which has two dormer windows, one on each side of the balcony, and facing toward the front of the house. The balcony is reached through the sewing room by double glazed doors that serve as windows to light the sewing room when the doors are closed. These two windows and the balcony give a very pleasing appearance both from the outside and from the inside.

The wide porch with its rough stone pillars, combined with the two dormer windows, causes the house to have a very attractive look. The house is finished in cement stucco which gives it a substantial appearance.

This construction—cement plaster or metal lath—it just as good as it looks, too. It is being very widely used and the results are unfailingly satisfactory where the work is properly done.



Arrangement of House, Size 22 ft. by 45 ft. 6 in.

Guaranteed Building Plans

51

Shingle Bungalow of Unique Design

A small bungalow of five rooms, which is particularly suited to a narrow lot, is shown in the accompanying illustrations.

The outside finish is particularly attractive. The sides are made of shingles which are laid with alternately wide and narrow exposure to the weather. The trim is white, which contrasts prettily with the shingle finish. The gables are paneled and the cement stucco in these panels fits in very well with the rest of the exterior decoration. The porch extends the full width of the house and offers unlimited possibilities for decorating. With the many kinds of porch furniture that one can get now at a very reasonable price, it is possible to make a porch into a summer parlor that will add much to the beauty of a house. The part of the porch near the front door is covered by a projecting gable and the rest is of the pergola type. The tapering white posts, supporting the roof, are rather unusual.

The inside arrangement is very good. The reception hall is large and, with the wide opening to the living room, seems to be almost a part of that room. There is a closet in the hall and a door leads to one of the bedrooms.

The living room is fairly large and

is almost square. It is well lighted by three big windows opening on to the pergola and two windows on the side. The cased opening into the dining room is so large that the effect is given of

one big room and these two rooms can be used together if occasion demands.

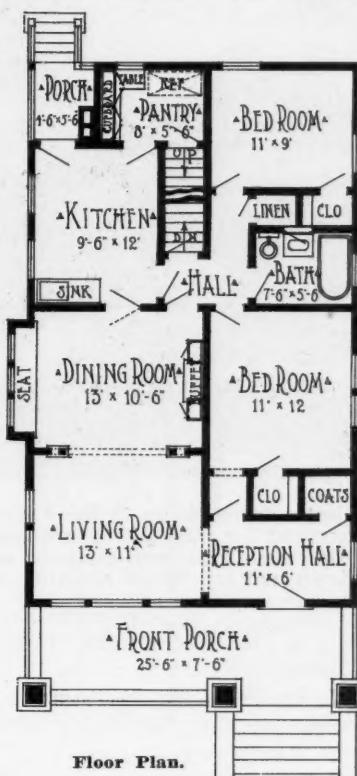
The seat in the square bay window in the dining room is one of the features of this room. There are three windows in this bay with the seat underneath which presents a pleasing appearance. A buffet is built against the wall opposite this window.

A well lighted kitchen is often lacking in houses that are otherwise designed with a great deal of care. The lighting in this one is taken care of by two wide windows which extend almost across the side of the kitchen. This should result in a large decrease in the number of family jars, as house-wives say that only a saint can get up a meal in a dark kitchen and still keep her disposition unruffled.

There is a large storage place in the attic. The stairs to this go up from the pantry, which also contains a cupboard, a refrigerator, and a table.

The inside hall in this house opens into both the bedrooms, the bathroom, the dining room, and the kitchen. Also the stairs to the basement are reached through this hall. The basement is large and that is a good feature to have in a small house.

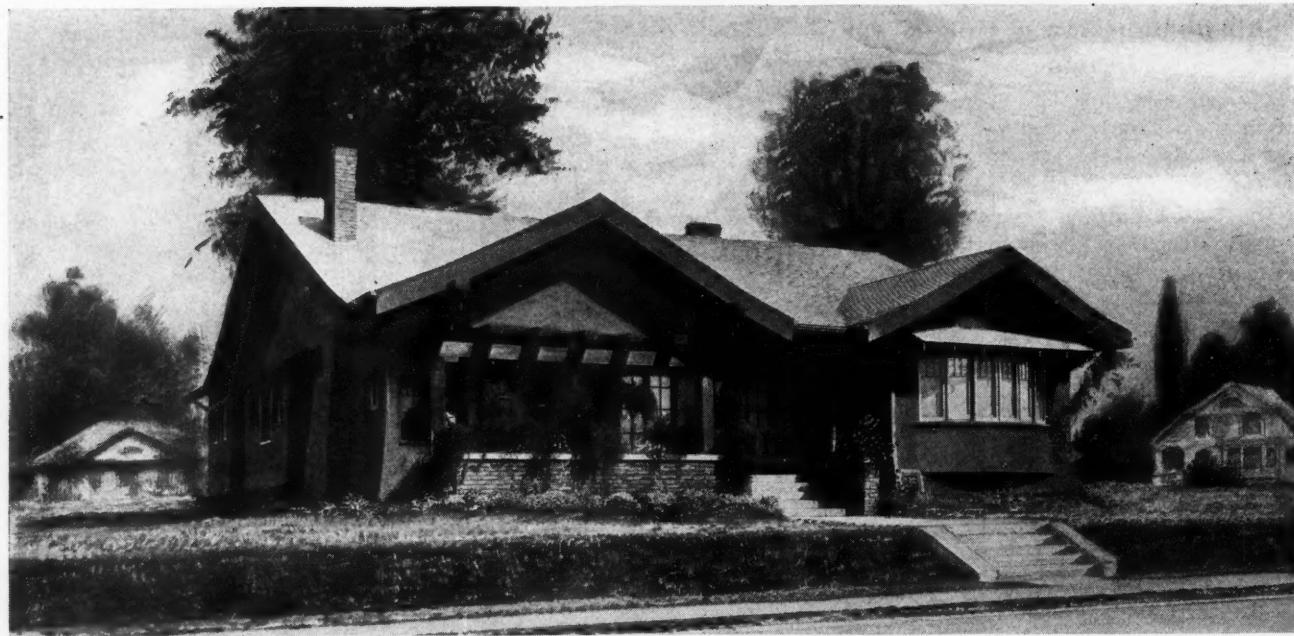
For a house of this size, the design shown here combines a fine arrangement with a very picturesque appearance.



Size 25 ft. 6 in. by 41 ft. 6 in.



Picturesque shingled Bungalow of five rooms. Size 25 feet 6 inches by 41 feet 6 inches. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$6.00 per set. Blue-prints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of type-written matter. When ordering, ask for Design No. 6698.



Palatial six-room bungalow in cement plaster. Size 42 by 43 feet 6 inches. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$10.00 per set. Blue-prints consist of basement plan; roof plan; main floor plan; front, rear, two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6693.

Palatial Six-Room Bungalow

A feature of this very artistic design is the large unobstructed floor space across the front of the house. The reception hall is extremely roomy and opens through cased openings into the living room on one side and the dining room on the other. These openings are as wide as the depth of the reception hall, and give the impression that the front of the house is all one big room. When the lady of the house is entertaining, the fact that these two rooms can be used so readily will be a big advantage.

If you don't believe us, ask any housewife what she thinks of this arrangement. We think such a design, which makes these rooms so accessible, will go big with the lady of the house.

The living room presents a remarkably cozy appearance. On the opposite side from the opening into the reception hall is a big brick fireplace, which has a bookcase on each side of it. The nook with the seat around it deserves special mention. The pergola is not built all the way across the front of the house, but a little corner is left projecting out at the end of the porch. The nook is built into this corner and seems to be detached from the rest of the room. A nook like this makes a very interesting and striking change from most house designs.

The window seat in the

curved bay of six windows in the dining room is a great convenience. It adds considerably to the use of the dining room in connection with the living room when they are used together for entertaining. There is a pair of double doors, full glazed, going onto the front porch, which make the porch and pergola accessible from this room. The porch can be reached from any room in the front of the house through similar doors. There are two sets of double doors from the living room and there is one set from the reception hall in addition to the solid door at the main entrance. All

these double doors are of glass, which helps light these beautiful front rooms.

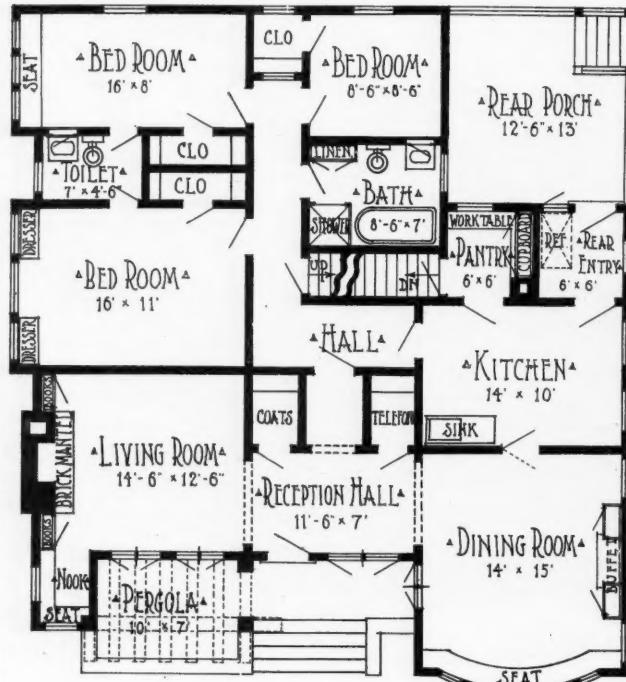
The closets in this bungalow should be a source of joy to the house-wife. The reception hall opens into an interior hall at the back. On one side of this archway is a closet for wraps and on the other is a telephone booth, which provides for privacy in telephoning. The closets in the two bedrooms on the side are exceptionally large, while the one for the bedroom in back is of good size.

The interior hall is a feature in this design. It opens into every room in the back of the house. The kitchen, the three bedrooms, and the bathroom are all easily reached through this hall. The stairs to the storage room in the attic are also in this hall.

The bathroom, in addition to all the usual fixtures, is large enough so that a shower and a linen cabinet are placed in it. There is another toilet between the two bed rooms on the side.

The kitchen is very large and has two pantries with a cupboard between them. The rear pantry or entry room contains a refrigerator which is iced from the outside.

This house is very beautiful from the outside. It is a modern cement plaster design with structural timbers showing. The beams from the pergola; the two gables, one over the porch and the other over the dining room extension; all combine to make an extremely pleasing impression.



Arrangement of Palatial Bungalow. Size 42 feet by 43 feet 6 inches.

Four-Room Shingled Nest

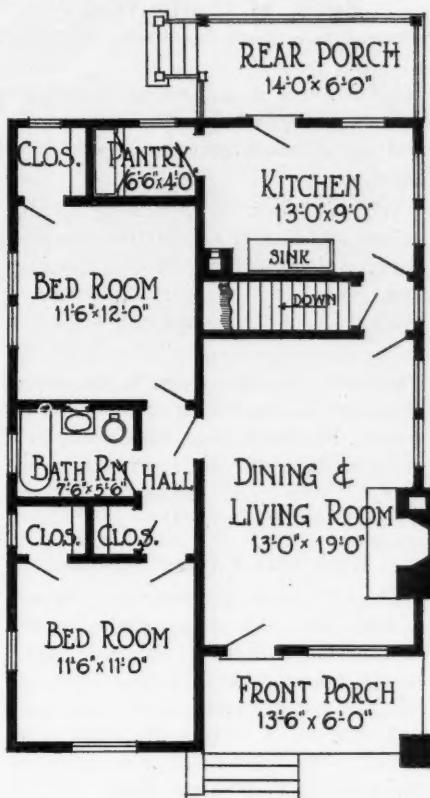
In many modern houses the owners insist that one large living room is the most important part of the house. To attain such a result in a small house, it is often necessary to combine the living room and the dining room into one large room. Such a design is shown here.

The sunny side of this house is taken up by a front porch, a combination living and dining room, and a kitchen. The other side has two bedrooms and a bathroom with all the necessary closets, a pantry, etc.

The size of the living room in this design, considering the size of the house, is remarkable. The bungalow is only 26 by 39 feet and the combination room is 13 by 19 feet. There is a big fireplace in the side of this room near the end, while two big windows occupy the rest of the outside wall space. There is also a wide and rather low window opening out onto the porch. This adds greatly to the artistic effect of the room. With the proper selection and placing of furniture, this room can be made much more attractive than many rooms in houses costing two to three times as much. The wall space along the inside wall and in the back corner of this room can be utilized fully in the placing of furniture, if the arrange-

ment is carefully studied out. This room has unlimited possibilities for decorations.

Though the living room is very

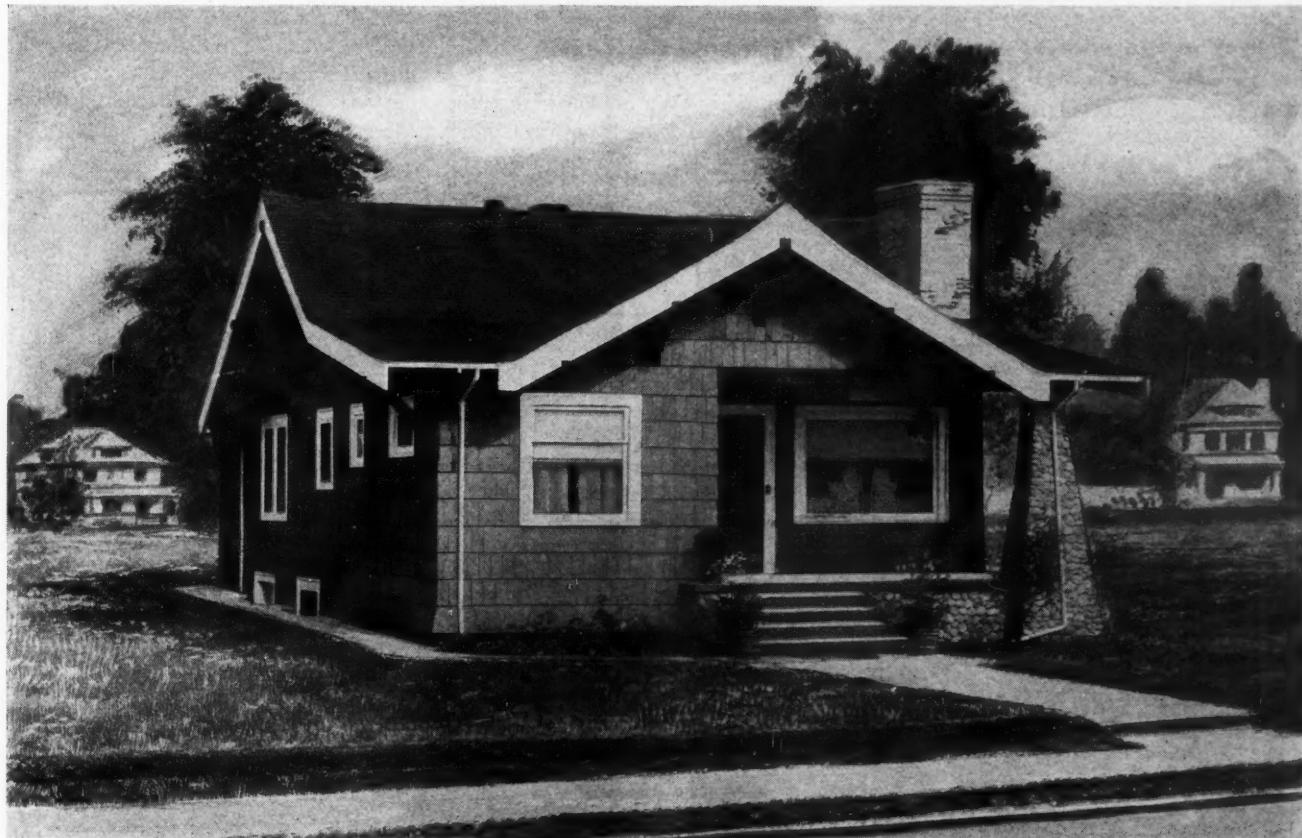


Four-Room Nest, Size 26 by 39 ft.

large, the house has been so well arranged that the other rooms are all a good size. There is a small hall that opens into both the bedrooms and also into the bathroom. These narrow halls that are often placed in houses are a great convenience. They make all the rooms accessible and add greatly to the comfort of a house.

The closet room in this design is also a feature. There are large and roomy closets in each of the bedrooms and also there is a closet opening into the hall that can be used for linen, etc. The rear porch and the kitchen are both of good size and conveniently arranged.

The exterior view is particularly attractive and artistic. The roof treatment deserves notice because of its unusual design. There is a gable projecting out in front to cover the house on one side, and the distinctive looking built-in porch is the feature of the other. At each front corner the pitch of the roof is changed and made slightly flatter than the main roof. This adds to the unique appearance of this little bungalow. The cobblestone pillar supporting the roof at the corner of the porch is another striking feature of the appearance of this design. This pillar is tapered down toward the roof. The foundation under the porch is also of cobblestones.



Shingled Four-Room Bungalow. Size 26 by 39 feet. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$5.00 per set. Blue-prints consist of basement plan; roof plan; main floor plan; front, rear, and two side elevations; wall sections; and all necessary interior details. Specifications consist of twenty-two pages of typewritten matter. When ordering, ask for Design No. 6705.

Correct Draping of the Home

An Art Which American Housewives Are Just Beginning to Appreciate and Practice

By E. M. Ballantyne

Head of Drapery Department, Kirsch Mfg. Co., Sturgis, Mich.

(Editor's Note—This article is not intended to be a complete survey of correct draping but simply a suggestion as to the possibilities when the subject is worked out in detail. Mr. Ballantyne can advise you, giving definite recommendations if you will put your problems up to him.)

FURNITURE and carpets furnish a home, but it remains for the curtains and draperies to add the touch that makes home homey and artistic.

Pretty strong statement, I admit, but very true. Recall the cheerlessness of home during moving and house cleaning time when windows are bare—and you will agree.

From the outside, well draped windows stamp the housewife as a woman of refinement and taste—from the inside they are the most potent source of home-like charm.

The housewife with an understanding of the art of effective draping can make home a spot of real cosiness and charm with a very modest outlay.

Fifty dollars in draperies will go farther toward making a charming, delightful home, than fifty dollars spent in any other way.

Lack of Draperies Noticeable

Take away a chair costing \$50.00 and the loss would be hardly noticed. Substitute less expensive rugs and the differ-

ence in effect would not be materially noticeable—but take away the draperies and the charm of the room would be gone.

With a better understanding of the value of draperies and the greater thought given to the matter of draping, new style and wonderfully effective methods have been developed.

The particular housewife of today, in touch with the new styles in draperies, considers the decoration of the room as a unit. Furniture, rugs, woodwork, wall paper, wall paints, inner curtains, overdrapes, rods and pictures—all are planned in harmony.

Work Out a Color Scheme

The wall paper, for instance, is chosen to emphasize the other objects in the room. The colors of the wall paper should take up some minor, mayhap subdued color, usually from the rugs, and feature it. The draperies also should either emphasize some color in the wall paper or in the rugs.

If the inner curtains are simple in pattern, the overdrapes can be made a little more elaborate.

In bedrooms, the brighter colors should be used to emphasize the element of cheer. We all know that the colors which make us happy and light-

hearted are the yellows, gold, blues, pinks, and the light greens, and you will find that these colors are featured in the patterns for overdrapes intended for bedroom use.

In carrying out the harmony of the home, the housewife also makes her bed covers, dress covers, box covers, chair covers, cushion covers, pin cushions, radiator covers, etc., out of the same material used for overdrapes.

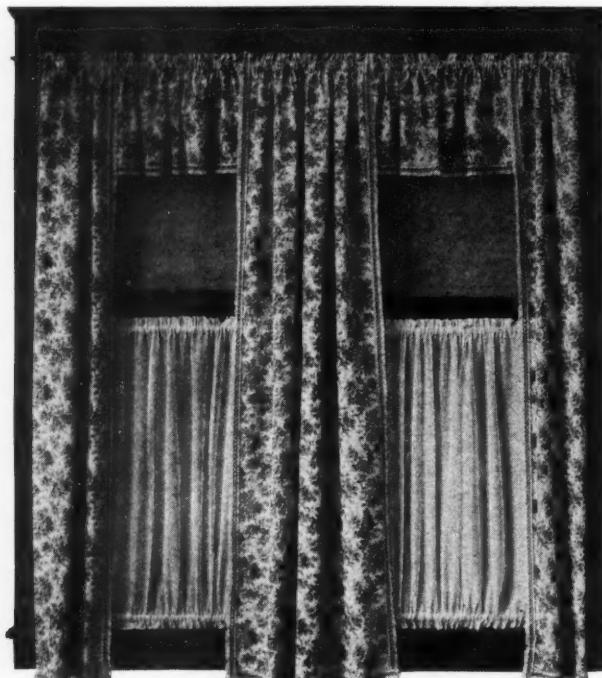
Cost Not Prohibitive

This can be accomplished at very moderate expense as printed voiles in dainty patterns can be purchased as low as 10 cents a yard, cretonne as low as 25 cents a yard, while made-up curtains can be procured as low as \$1.25 per pair.

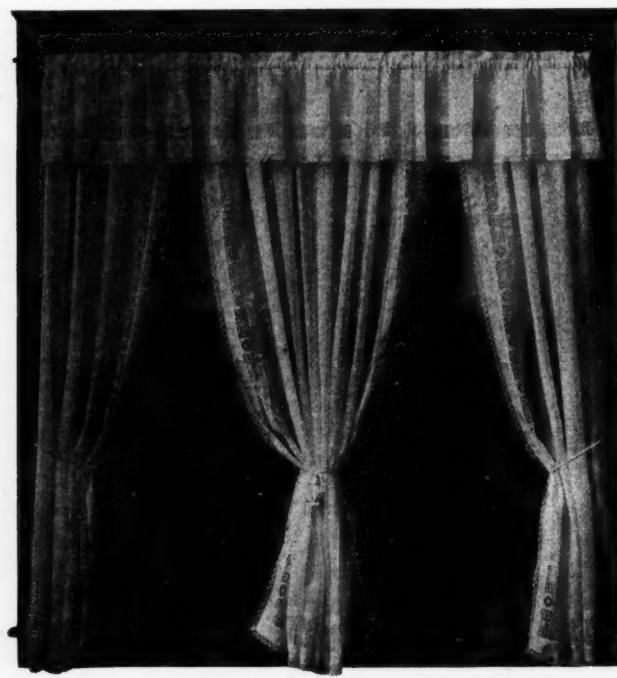
In the living room, more sombre colors are the rule for harmony with the heavy furniture and the more elaborate rugs. This is also true in the dining room, although here the effect should really be a sort of happy medium between living room and bedroom.

Wall Papers and Draperies Go Hand in Hand

The big wall paper houses are following the trend of the times by carrying draperies and showing an overdrapery or portiere curtain that harmonizes with the particular pattern that they have de-



Double Windows Draped with Muslin Sash Curtains and Figured Cretonne Valance.



Sheer Drapery of Cream or Ecru Voile Arranged for a Double Window Group.



Well-Planned Seven-Room House Designed and Built by Ray A. Kennedy, of Blockton, Iowa.

signed for the wall paper. The cut-out borders that they have in the many brilliant colors are either geometrical or floral in design and the same design is taken up in the cretonnes, tapestries, or the madrasas which are used for overdrapes in the room. Whenever fancy borders are used with rather elaborate cretonnes then a neutral color should be used in the body of the wall paper so that the room will not be overdone.

Rods Important Item

With the awakening of the greater artistic possibilities in the draping of the home has come a change in the rods used. While a great many wooden poles are still in use, and large numbers of the cheap tubular rods, the flat style of rod, which is guaranteed not to sag, rust or tarnish and finished in colors to match draperies or woodwork is rapidly growing in favor because it makes possible draping effects in no other way obtainable, and carries out the color scheme even to the color of the rods.

These new rods make modern draping methods possible even in the large numbers of American homes, which have old-fashioned woodwork, for these rods allow for the placing of the draperies outside of the casing.

Even the person of moderate means can afford to have every room of the home well draped, and surely in no other way can the expenditure of an equal sum of money contribute so greatly to the artistic and comfort-giving qualities of the home.

How to Water Lawns

Bad watering is the cause of almost as many poor lawns as droughts, according to the landscape gardener of the United States department of agriculture. Frequent watering of merely the surface of the grass makes the roots of the grass grow near

the surface, and these roots should be made to grow down as deeply as possible in order to secure a fine lawn that will resist the hottest weather of summer.

The best method of watering the grass is to apply a spray for from 6 to 12 hours, the stream being so gentle that water will not collect in sufficient quantities to run off. The water will then sink down into the soil and the roots will grow to a greater depth. When this method is used, the lawn should not be watered oftener than twice a week, and then

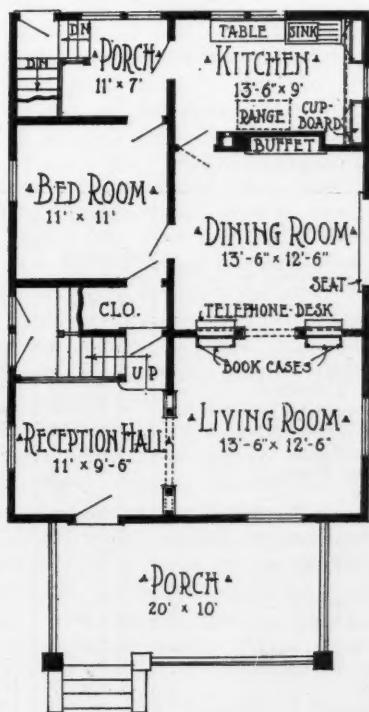
The man who enjoys watering his lawn in the evening for a half hour after returning from work, will probably prefer this method to leaving the stream on for a number of hours once a week. If he will divide his lawn area in six parts and confine his attention to a different part each evening, he will obtain practically the same results in the long run. Haphazard watering every evening is not advisable.

Many people wonder why drought dries up their lawns in July after they have taken what they consider to be good care of them. The combination of hot winds and dry weather makes July, undoubtedly, the hardest month for lawns, and when the roots of the grass are encouraged to grow near the surface by bad watering, and the loose dirt is also removed from them by a hose of strong water power, the results are more disastrous than if the lawn had been left alone.

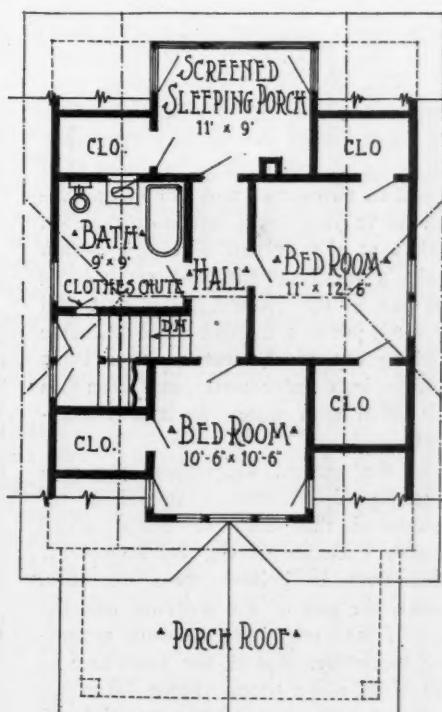


Well-Planned Seven-Room House

To the Editor: Blockton, Iowa. Am enclosing photo of residence I designed and built for Dr. W. H. Blakemore of Sheridan, Mo. This is the most modern house in this part of the country. It has a hot water heating plant complete and modern plumbing.



First Floor.



Second Floor.

Arrangement of Kennedy House.

the ground should be soaked, so that the water penetrates for several inches beneath the surface. As a general rule, watering once a week is sufficient to keep a lawn in good condition.

and gas lighting system with electric ignition, which makes the light as handy as electric lights.

RAY A. KENNEDY,
Designer & Builder.

How to Make Bird Houses and Shelters

By Warren Mason

YOU may have many beautiful birds about you at all seasons of the year if you only offer them a few inducements. There is a great deal of pleasure in building various kinds of bird houses and bird and food shelters, and there is greater pleasure in setting them up and watching the grateful birds make their homes in them.

Not only on account of their beauty and song are birds desirable, but they are especially useful as insect destroyers, especially during the breeding period, when they have to work early and late to obtain food enough for the little birds. It is interesting to watch them at that time.

Birds appreciate fresh water for bathing and drinking. If you can make a

make perches outside the entrance as they are not necessary and frequently English sparrows use them. Always protect the entrance so that rain will not drive in. Paint your bird houses to

Do not think you must build all your bird houses out of finished boards in fancy designs. While it is true that a bird house prettily made and painted is always an attraction, the birds themselves are looking for good homes and anything that will shelter them and give them a safe place for a nest will always attract them. You can make bird houses out of tin cans, hollow logs, gourds, little wooden boxes and many such things.

If gourds grow in your locality, save them for bird houses.

A gourd is something like a small squash and the shell hardens. Cut a hole in a dried gourd and remove the contents, and you have a bird house fit for swallows and martins, a bird house that is water proof, warm and comfortable and one a cat cannot well get into. Fasten them to branches as shown in Fig. 1, or, if you wish to make a bird house colony with a dozen bird houses, make a cross support and set it in the ground or fasten it on the corner of a shed or barn.

Hang these gourds by means of wire through the necks as strings will rot in wet weather and cause the bird house to fall. When hung together in groups martins will use them, when hung singly wrens, bluebirds and other small birds will make their homes in them.

Branches containing real woodpecker holes, when obtainable, are perhaps the best attraction that can be offered most birds in the breeding season, but you

little cement-bottomed pool in some shady place, that is, where it is always shady, the birds will flock there in large numbers throughout the hot season, where they will delight you as they drink and bathe. The pool need be no more than a foot or two across and should be shallow, of varying depth, not more than six inches at the deepest. If you cannot make a small cement pool, set a large tin pan in the ground, fill it half full of sand, put in a number of rocks, some sticking out of the water, and a brick half an inch under water, and keep this pan filled with water, as it will evaporate.

In the general suggestions for constructing bird houses it should be remembered that for the birds which usually excavate or dig out homes for themselves in hollow trees or sand banks, the size of the entrance and the size of the cavity must be made according to nature, that is, the same size as the birds make them. Some birds are satisfied with almost any sort of lodging. Bluebirds and wrens will nest in tomato cans while chickadees and nuthatches will not go near them. Wood is a far better building material than metal or earthenware. Set all the heads of nails and screws deeply and cover them with putty. Make all your bird houses easy to open, for cleaning. Do not

protect them. Gray or green is the best for houses that are to be set on trees. Those that are to be placed on poles should be painted either white, or to match the color of your own house.

Different birds need different sized houses. A bird that builds a very small nest would not be attracted to a bird house with a compartment several times as large as its natural nest. Experiments made in the United States Department of Agriculture have enabled us to know the right size for bird houses or bird-house compartments, for all sorts of birds. These dimensions were learned by measuring the natural nests, etc. The table of sizes, as made up by government experts, is as follows:

SPECIES	Floor of Cavity	Depth of Cavity	Entrance above Floor	Diameter of Entrance	Height above Ground
Bluebird.....	Inches	Inches	Inches	Inches	Feet
5 by 5	8	6		1½	5 to 10
Robin.....	6 by 8	8	(1)	(1)	6 to 15
Chickadee.....	4 by 4	8 to 10	8	1½	6 to 15
Tufted Titmouse.....	4 by 4	8 to 10	8	1¼	6 to 15
Whitebreasted Nuthatch.....	4 by 4	8 to 10	8	1¼	12 to 20
House Wren.....	4 by 4	6 to 10	1 to 6	7/8	6 to 10
Bewick Wren.....	4 by 4	6 to 8	1 to 6	1	6 to 10
Carolina Wren.....	4 by 4	6 to 8	1 to 6	1½	6 to 10
Dipper.....	6 by 6	6	1	3	1 to 3
Violet-green Swallow.....	5 by 5	6	1 to 6	1½	10 to 15
Tree Swallow.....	5 by 5	6	1 to 6	1½	10 to 15
Barn Swallow.....	6 by 6	6	(1)	(1)	8 to 12
Martin.....	6 by 6	6	1	2½	15 to 20
Song Sparrow.....	6 by 6	6	(2)	(2)	1 to 3
House Finch.....	6 by 6	6	4	2	8 to 12
Phoebe.....	6 by 6	6	(1)	(1)	8 to 12
Crested Flycatcher.....	6 by 6	8 to 10	8	2	8 to 20
Flicker.....	7 by 7	16 to 18	16	2½	6 to 20
Red-headed Woodpecker.....	6 by 6	12 to 15	12	2	12 to 20
Golden-fronted Woodpecker.....	6 by 6	12 to 15	12	2	12 to 20
Hairy Woodpecker.....	6 by 6	12 to 15	12	1½	12 to 20
Downy Woodpecker.....	4 by 4	8 to 10	8	1¼	6 to 20
Screech Owl.....	6 by 8	12 to 15	12	3	10 to 30
Sparrow Hawk.....	8 by 8	12 to 15	12	3	10 to 30
Saw-whet Owl.....	6 by 6	10 to 12	10	2½	12 to 20
Barn Owl.....	10 by 18	15 to 18	4	6	12 to 18
Wood Duck.....	10 by 18	10 to 15	3	6	4 to 20

(1) One or more sides open.

(2) All sides open.

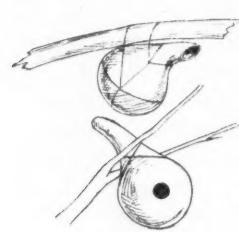


FIG. 1
Gourd Nests.

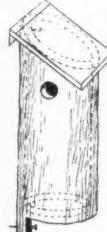


FIG. 2



FIG. 3
Rustic Log Bird House. Phoebe Nest Shelter.

cannot always find a discarded woodpecker's nest in a limb. You can always make one, however, from a small section of a limb. You can burn or chisel this out or, better still, get a limb that is hollow through decay. Fig. 2 shows a log bird house. The dotted lines show how it is made. The top should be of tin and hinged so you may clean it out each season. The hole should be near the top as shown and about one and a half inches in diameter. These houses may be attached to fence posts or to trees.

Some birds prefer houses in the trees and bushes not in plain view of your house or buildings, others prefer to nest near buildings. Be sure and scatter your bird houses in both places.

Phoebe's like to nest near buildings and do not care for inclosed houses. Put up a shelf close under the wide eaves of a building, not more than eight inches below the lower edge of the



An Eight-Room Purple Martin Bungalow.

eaves, with sides, or else make a little shelter such as is shown in Fig. 3. This will be all the phoebe's want. In fact, they will not build nests inside of closed-in houses.

For catbirds, brown thrushes and song sparrows, a nest shelter is all that is needed. It is really like a little summer house, with no sides but a wide roof that keeps the rain and sun out. These birds will build in such shelters if they are placed in the thick bushes or patches of weeds which such birds frequent. But if you place these shelters, such as is shown in Fig. 4, in trees, the chances are that robins will use them, therefore make several and use some for robins.

Swallows, bluebirds, wrens and such birds will readily make their homes in simple little bird houses, shown in Fig. 5. Note how these houses are made to slip down over the flooring and corner uprights. In this manner you can lift up the house and clean it out at any time, put in food and give it a thorough scrubbing in the early spring in readiness for new arrivals.

A home suitable for flickers is shown in Fig. 6. It can be placed on a post or stub of tree or corner of a barn or

shed although if placed on a building the flickers will be less likely to make their homes in them. The roof of this flicker house is designed to be lifted evicted, often transfer their housekeeping to the small house. Houses designed for woodpeckers should always have an inch or so of sawdust in the bottom for

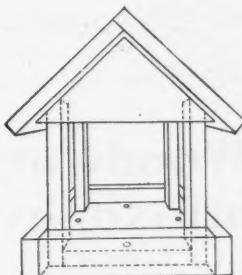


FIG. 4

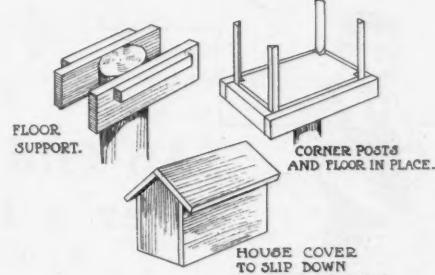


FIG. 5

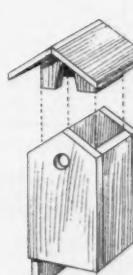


FIG. 6

A Flicker House.

Nest Shelter for Thrush or Catbird. "Take-Down" House for Swallows, Bluebirds, or Wrens.

so you may drop in food, or clean it out.

Each spring before birds return from the South all filth and litter should be carefully removed from bird houses. In addition to the relics of previous occupancy, houses are likely to contain cocoons of insects, and nests of bees or squirrels. Attention to this one item of spring cleaning is a substantial factor in attaching birds permanently to their houses. A little sulphur scattered about a house is a good remedy for parasites. When bluebirds or swallows take possession of a martin house, it is a good plan to put up a one-room house in the vicinity and remove the nest from the martin house. Interlopers, thus

the reception of eggs, as woodpeckers do not gather nest materials. Due attention should be given to repairs. It is easier to keep houses in good order than to build new ones.

The location of a bird house or food shelter has much to do with its success, for the reason that birds have decided notions as to proper surroundings for a dwelling. Martins prefer to breed near houses, but not within 20 feet of trees or buildings. Bluebirds are inclined to select orchards or pastures having scattered trees. Wrens, thrashers, and catbirds live in thick shrubbery. Robins like trees with sturdy trunks and branches. Titmice, nuthatches, and most of the woodpeckers are woodland species, although flickers and red-headed woodpeckers are more at home among the scattered trees of roadsides and pastures. Song sparrows frequent weedy swales and brush fences. Swallows do not enter woods so that a house would be as attractive to them in one open place as in another. The eastern phoebe, the black phoebe, and the house finch, while not limited to the haunts of man, are noticeably partial to them. Crested flycatchers, screech owls, barn owls, and sparrow hawks are governed more by convenience than by taste; although normally inclined to hold aloof from man, they have in many instances reared their broods in close proximity to dwellings. Barn owls, true to their name, accept suitable quarters in buildings without hesitation.



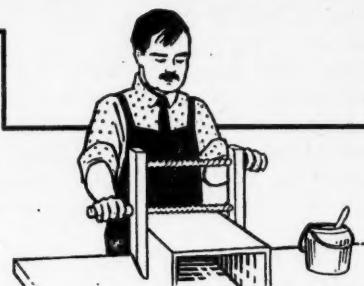
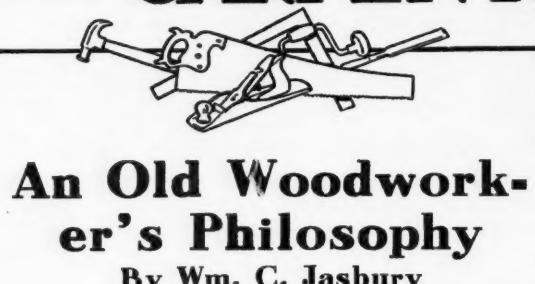
Success has followed forest planting on the sandhills of Nebraska. Jack pines planted there by the government forest service ten years ago now have a height of over 15 feet and a diameter of 4 inches.

BIRDS AND THEIR VALUE TO YOU

Occasionally people are heard to remark: "Of what use are birds to us anyway?" to which we would say: "They are worth millions of dollars." Without our native birds there would soon be no plant life. Insects would destroy everything. Few people realize the vast amount of damage insects are doing. Agriculturists estimate that the damage done to our crops through the work of destructive insects amounts to more than \$400,000,000.00 a year. The natural increase of the gypsy moth, if unchecked, would practically destroy every tree in the country in eight years.

Nature, however, gave us birds as a natural combative force against the ravage of insects. But we are not properly caring for them. Civilization is gradually destroying the forests, the natural haunts of our little friends, leaving them no place to nest, and those birds which still remain are being molested and destroyed under the mistaken impression they are pests. The English sparrow only is a pest and is driving away our native birds. This should not be since they are man's best and most necessary friends. A single yellow throated warbler will consume 10,000 tree lice a day, while a martin will consume about 1,000 mosquitoes a day besides a large number of flies, beetles, and other insects. It is simply amazing the amount of good work accomplished by our native birds. Since their natural haunts and nesting places have been destroyed, we must provide other means for their protection.—Farley & Loetscher.

TRICKS of the CARPENTRY SHOP



An Old Woodwork-er's Philosophy

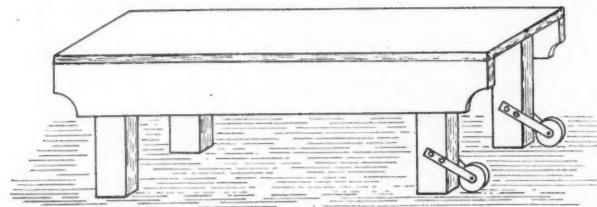
By Wm. C. Jasbury

I HEREBY submit another batch of woodworking notions with which I have come in contact during my record as a member of the craft which makes things out of that which composes the chief contents of woods and forests.

KNOWING WOODS.—Speaking about woods, trees and the like, did it ever occur to you how little the ordinary woodworker knows about the different kinds and species of woods while in the primitive or tree form? Some of the woodworkers of today who had the advantage of early life on a well-fed farm can tell the soft wood trees from the hard by noting the leaves, the long, slender leaves, or links, as the spruce, fir, pine, etc., and the broad leaves as the chestnut, oak, hickory, etc. It is amusing to a woodworker with years of experience and close observation to hear a highly colored office boy tell a prospective customer what he should use and how he should use the various grades of wood. There always seems to be something pitiful about such an occurrence. I know a woodworker who has studied the various growths, and who has been in many shops and worked many kinds of woods. I have heard a six months' shop novice "bawl him out" before the boys. Such is life in a big shop.

A PERAMBULATING WORK BENCH

Every concern having a number of employees usually have one or more freaks, *i.e.*, one on whom all others

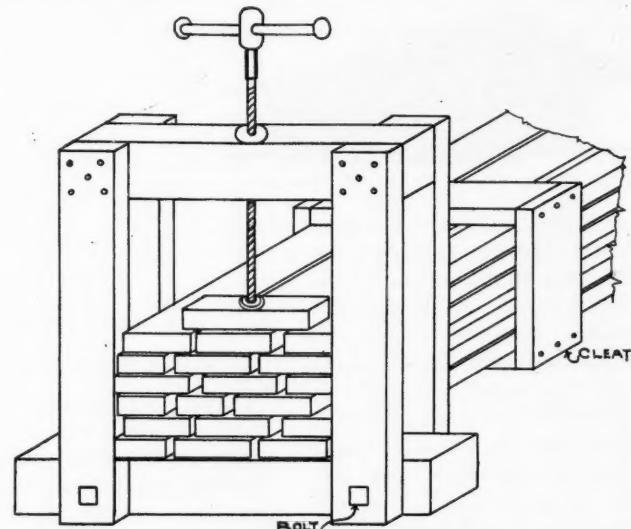


Work Bench Equipped with Wheelbarrow Rollers for Easy Moving About Shop or Shipping Room.

seem to look as a joke. I am at present with a concern that has one—a real, life-like specimen. This gink has the inventive faculty, along with the rest of his funnylums. He is employed in the shipping department, which naturally gives him an opportunity of exercising some of his stuff. One of his freaks is a bench he works on; he has put wheels under two legs, so that he may move it to his work instead of

work to it. He lifts up the end; the wheels then touch the floor, and away goes the parade.

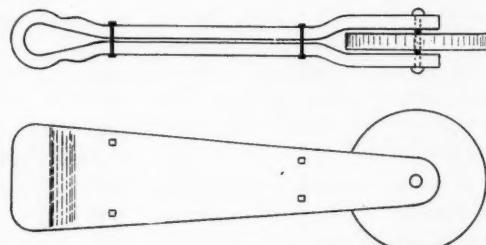
BUNDLING CLAMPS.—When this gink bundles up trim and moulding for shipping, instead of using a hand-screw, he has built two screw clamps which have a come-apart corner with a bolt in it at



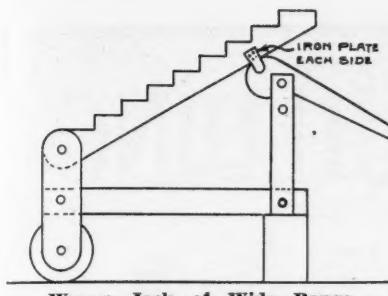
Ingenious Bundling Device with Hand Screw for Millwork Shipping Room.

the bottom. He puts the two bottoms down first, piles the trim, mouldings, etc.; then puts the upper structure on, fastens the corners and screws down. While in this compressed state, he nails his cleats around the bundles at intervals, releases the screw,—and then takes another dose of snuff as large as a bale of hay.

COUNTING DEVICE.—When counting mouldings, he has sticking out of his mouth a leather counter he invented. It consists of a piece of sole leather, or rather two pieces riveted together. One end has a place cut in that fits his teeth (this



Counting Device with Numbered Wheel.



Wagon Jack of Wide Range.
wheel, his bench has wheels and the d. f. himself has wheels.

This man is also the official wagon greaser of the outfit. He has wagon jacks of every breed and cult, from small enough to take from the mother, to large enough to go to work.

A WHEELWRIGHT—A QUEER OLD JOSIE. While I am on the question of woods, shops, etc., I desire to say I know personally, a wheelwright; have been many times in his shop. (To use the word shop in this connection is nearly sacriligious). Anyway, I recently saw this man repairing a piano stool. Instead of warming the wood, applying good glue, and clamping up with something soft to protect the polish, he had a steel clamp large enough to squeeze together the mouth of a volcano, as a plumber would a lead pipe before the air test. He was nailing the joints with horseshoe nails borrowed from an adjoining farrier's, and the hammer he was using would make a clapper for Moscow's mammoth bell. I didn't stay to see the job completed; in fact, "complete" is not one of his bills of sale.

Now, as to this man's shop, to pass through from one side to the other is as perilous as scaling Mt. Everest. Wagon wheels, spokes, hubs, tires, chips, dirt and a million other things cluttered up the place. A drawer had been pulled out of a bench about 18 inches, no doubt away back before the Civil War, and left out. It was full of rubbish, tools (?), etc.

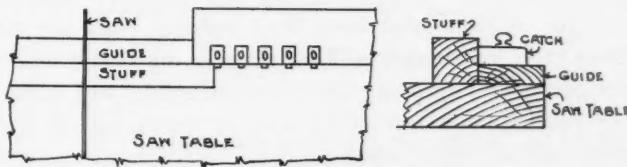
The proprietor of this layout is one of those fellows who have solemnly vowed to bust up the Soap Trust. He always seems to keep busy. He lives. That's the way some men shamble through life. They don't have any of the modern worries such as anti- this and anti- that. They do not know the meaning of sterilize, disinfect and such. This particular man has been wearing the same derby hat since the Battle of the Alamo. The crown is so patched and faded it resembles the wrappings on Ramesis, the Egyptian White-Hope Mummy. The band on said hat is no longer a fabric; it has rotted into a gelatin similar to pemmican or whale blubber. The steel wire in the rim has proven an alibi many decades ago, and as to the sweat-band, that is now detached from the hat and has become a part of the wheelwright's head, showing a ring of different colored fungus growth around his temples. All of the foregoing only goes to prove that the wood-working business is indulged in by all kinds of men.

AND NOW THE OTHER EXTREME.—Right along these lines I will say that I once worked for a

guy has teeth also), the other end has a wheel made of a washer on which he has stamped enough figures to build a high school arithmetic. This contraption has a

man who ran a small mill. This fellow was so scrupulously clean, he didn't care whether we did any work or not, just so we held to the rule, "A place for everything and everything in its place." He had mosquito nets on the windows for fear some of those thin warriors would trespass and bite his lumber. A piece of worm-eaten wood would not be allowed on the premises. He claimed to know the personal habits of worms. He often kicked on using glue on account of the odor, and grease running down the side of a hanging-box or on a loose pulley would give this man a severe case of twitching feet. Anyway, he finally broke up and later died (I hope he is happy). It only goes to show how differently some men conduct and carry on business in the woodworking line.

A CUT-OFF SAW GAUGE. I saw a man once cutting up lengths every 2 inches from 18 to 26 inches, the stuff being waste rippings, all odd lengths. He fastened cheap cupboard catches on a board as stops and when he wanted an 18-inch piece, he butted his piece against the tongue of the first one; when he wanted a 20-inch piece he pushed back the tongue of No. 1 and put his stuff against No. 2.



Cut-Off Saw Gauge Made of Cupboard Catches.

ON LIKING THE WORK.—To tell a Hobo who is chopping wood for a hand-out that the working of wood is fascinating would be nothing short of a crime. However, it is. Take, for instance, the small boy who before Christmas puts up a plea to Mr. Santa Claus for a kit of carpenter's tools. His craftsmanship is soon in evidence on the piano, house trim and other things that cause taxes. Then there is our old friend Silas, sitting on a box outside the General Store, whittling at 250 volts and 66 amperes. The best character to pull down a laugh is the bank clerk, store clerk or such person who has a part kit of tools, who goes to the nearest mill, buys some oak or chestnut, and starts maltreating it into mission furniture. His wife will send out invitations in various languages to her friends to come and see the "beautiful" furniture Mr. Ollie K. Wallkie made. If there is, perchance, a real cabinet maker around he may be dragged in to look it over. Of course, no real human mechanic would say it was rotten, or "You should have done it otherwise," but he will say, while backing out, such things as "You're all right, old man" and "Believe me, Mr. Pishtush, you are certainly handy with the tools" (meaning the knife and fork).



HE has the right to criticise who has the heart to help.—Lincoln.



Noon Hour Talks by the Boss Carpenter

Talk No. 34—Steel Truss Joints

THE BOSS SHOWS DETAILS OF JOINT CONSTRUCTION FOR STEEL TRUSSES AND TELLS HOW TO FIGURE SAME

"LAST time," said the Boss, "I showed you fellows some of the common kinds of joints for timber trusses and told you how to figure the strength of such joints. Now, I do not expect that many of you will be called upon to actually design steel trusses for your every-day work, but I am sure that you fellows who have been staying with me on these talks on trusses will agree with me that you do not care to go very far into the contracting and building business without being able to check up on the other fellows' work when you have to risk your reputation on the work.

"Every one of you can find out the amounts of stress in each and every member of any of the ordinary kinds of trusses by following the graphical dia-

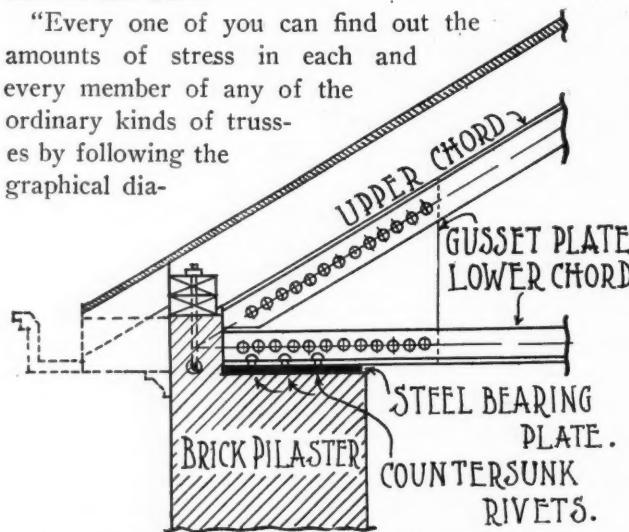


Fig. 37. End Joint Showing Gusset-Plate and Wall Plate.

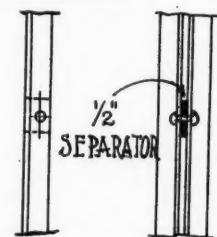
grams that we have constructed. Now let's see how we will check up on the other fellow's design of the joint construction in any steel truss that we are called upon to use in a building.

"Unlike a timber truss, steel trusses are generally riveted up in sections at the shop where they are designed and the sections are shipped with provision made for assembling after they have reached the work. Trusses for small buildings are often riveted completely at the shop and shipped ready for putting in place.

"Although we have talked of it before, it may be well to remember that the top and bottom chords of a light steel truss are generally made up by placing two steel members of angle section back to back and riveting these angles firmly to flat steel plates called 'gusset-plates' which are placed between the angles as shown in Fig. 37. This gusset-plate forms a meeting place for the different members of the truss and provides a place for the joint. Single angles may be used for tension members where the tensile stresses are not high, but compression members should consist of the double member. As a preventative against buckling when in compression, the double members are further held together by the use of rivets and washers or separators as shown in Fig. 38. These rivets are often referred to as stay-rivets and are placed from 18 inches to 30 inches apart along the double member, the spacing depending on the size of the steel angle used. A spacing of 18 inches is used for a 2-inch angle, 24 inches for 2½-inch angles and 30 inches for 3½-inch angles. In double tension members, the stay-rivets are also used, but the spacing may be increased to 3 feet in such members.

"Figs. 37 to 43 show the use of gusset-plates on an ordinary type of steel truss. These plates will vary in thickness from 3/8-inch to ½-inch, depending upon the size and thickness of steel angles used, and the size of rivets used for the connections. A common rule is to make the thickness of the plate twice the thickness of the angles which are connected to it, but this is not always done, since a 2 by 2 by ¼-inch angle is the smallest which is commonly used and many trusses are found with 3/8-inch gusset-plates.

"The diameter of rivets used may be 5/8-inch for the



TWO VIEWS SHOWING SEPARATOR.

Fig. 38. Method of Holding Angles at Proper Distance Apart.

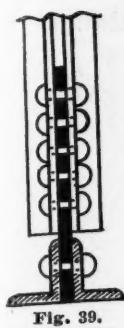


Fig. 39.
Angles Riveted to Gusset-Plate.

small angles and $\frac{3}{4}$ -inch for the larger ones. The rivet holes are figured as $\frac{1}{8}$ -inch larger than the rivets which are to go in them.

"By an inspection of Figs. 37 to 43 and from the discussion given above you fellows can see that the question really narrows down to finding the number of rivets needed in each member at each of the joints. We do this by seeing that there are two ways that the rivets in such a connection could fail. If there are two angles used—one on each side of a gusset-plate and fastened together and to the plate by rivets as shown in Fig. 39—the joint could fail by crushing the plate in front of the rivet, or by sliding the plate out from between the angles, thus cutting off the rivets where they pass through the gusset-plate. This latter method of failure would make necessary the shearing off of two cross-sections of metal on each rivet where the angles are used in pairs, or of one cross-section

diameter of the rivet in inches by itself; then multiply this result by 20,000. If only one section of the rivet is in shear, as in case of a single angle rivet to the plate, use 10,000 instead of 20,000 in the rule given above.

"For instance, suppose that we have a $\frac{3}{8}$ -inch steel gusset-plate used with two 4 by 3 by $\frac{5}{16}$ -inch angles and $\frac{3}{4}$ -inch diameter steel rivets for an upper chord member similar to that shown in Fig. 37, and we wish to examine the riveting at the end joint to see that it is safe. The safe bearing strength of a $\frac{3}{4}$ -inch plate would be from the above rule,

$$\frac{3}{8} \times \frac{3}{4} \times 16,000 = 4,500 \text{ pounds.}$$

"The safe shearing strength of a $\frac{3}{4}$ -inch diameter rivet with two sections in shear would be from the second rule,

$$\frac{3}{4} \times \frac{3}{4} \times 20,000 = 11,250 \text{ pounds.}$$

"From these calculations, it is very evident that the 4,500 value for crushing of the gusset-plate is the number to be used in finding the number of rivets needed.

"If this upper chord member has a stress of 36,000 pounds in the member, the number of rivets between the angles of the member would be 36,000

$$\text{---, or } 8.$$

4,500

"It can be seen from the above calculation that as long as the gusset-plates are $\frac{3}{8}$ -inch thick and $\frac{3}{4}$ -inch diameter rivets are used with

angles at least $\frac{1}{4}$ -inch thick, the number of rivets needed at any joint may be found by dividing the stress in the member by 4,500. If a $\frac{1}{2}$ -inch gusset-plate is used with a $\frac{3}{4}$ -inch diameter rivet, the 4,500 would be

changed to 6,000. If $\frac{5}{8}$ -inch diameter rivets are used with a $\frac{3}{8}$ -inch plate, the number to divide by would become 3,750, while for $\frac{5}{8}$ -inch diameter rivets in $\frac{1}{2}$ -inch plate the number would be 5,000. Each of these numbers is based upon the assumption that the angles are used in pairs.

"At the ends of the truss the riveting where the bottom chord joins the gusset-plate should be sufficient to bear the supporting force at that end of the truss as well as the horizontal pull. The bearing plate

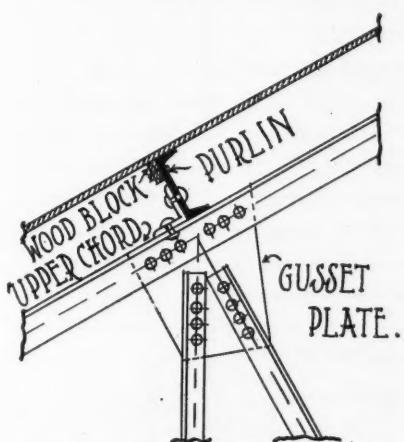


Fig. 40. A Typical Upper Chord Joint.

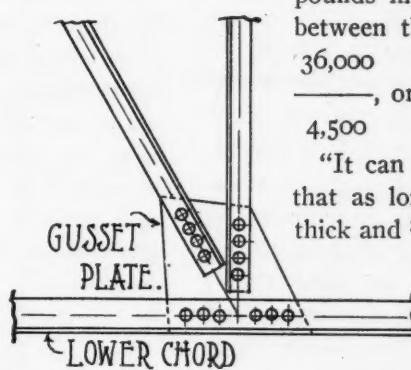


Fig. 41. Joint of Lower Chord.

where a single angle is riveted to a plate.

"If we know from our graphical stress diagrams and the corresponding tables of total stresses just how much tension or compression a given member in a truss must carry, we should then find the strength of a rivet against crushing the gusset-plate, and the strength of a rivet in shear and then divide the total tension or compression in the member by the smaller of these two values to obtain the number of rivets needed at a given location.

"To do this, take the thickness of gusset-plate and diameter of rivet and multiply this thickness in inches by the diameter in inches and then this result by 16,000. This will give you a safe value of the strength of *one* rivet against crushing. This is assuming that the thickness of the plate is either equal to or less than the thickness of the two angle legs through which the rivet also passes.

"To find the strength of *one* rivet in shear where *two* sections of rivet are cut off by the plate, multiply the

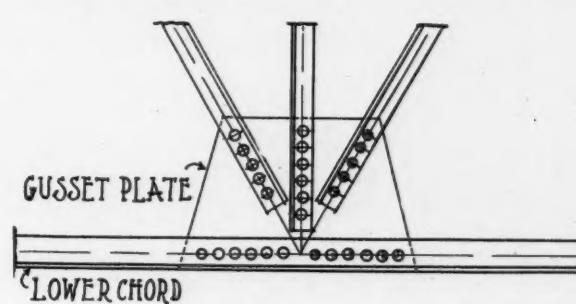


Fig. 42. Center Joint of Lower Chord.

shown in Fig. 37 carries this supporting force direct to the two angles of the lower chord and there, in turn, to the gusset-plate. If the gusset-plate does not fit down tight against the wall plate, care must be taken to see that an additional number of rivets are put into this lower chord where it joins the gusset-plate. To

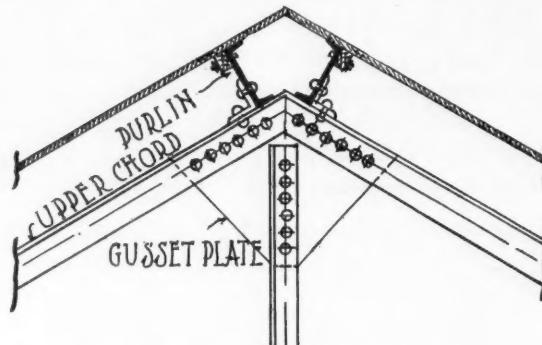


Fig. 43. Center Joint of Upper Chord.

determine this additional number of rivets, divide the reaction, or supporting force at an end of the truss by the strength of *one* rivet in crushing as given above. Then to find the *total* number of rivets needed in the end joint of the lower chord, find the number necessary to withstand the pull in the end member of the lower chord by the method shown earlier in this talk, and then add your answer just obtained.

"Where so-called 'field rivets' are used to join the parts of the truss when it reaches the job, an allowance of one rivet more in every four as computed by the method given above is common. That is, if your calculations show that four rivets are needed in a member, where the connection is to be made on the job see that provision has been made for five rivets. Also, see that at least two rivets are used at any joint, no matter how small the stress may be.

"The lines of the rivet centers should lie along the center of gravity of the angle sections if possible and in lines which coincide with the lines of the truss outline. If two rows of rivets are used on the same member in any location, they should be staggered.

"Splices between angles should not be made at the joints. A splice of this kind where two angles are used should be made by riveting a plate between the two legs of the pair of angles which are placed back to back, and then another plate should be riveted across the two legs which form a flat surface.

"Another time," said the Boss, "I will figure out the sizes of some of the members of timber and steel trusses for you."



Forest Notes

More than nine million young trees and ten thousand pounds of seed were planted on the national forests in 1914.

At least 25 per cent of the larch timber over large areas in eastern Oregon has been killed or weakened by mistletoe, and the forest service is taking steps to combat the pest.

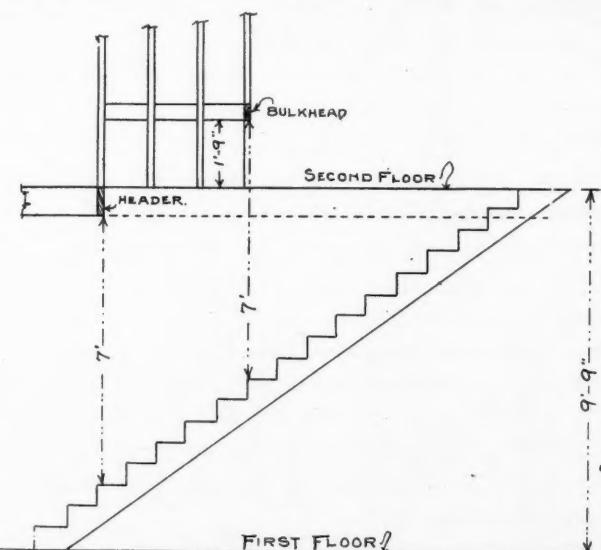
Figuring Headroom Under Bulkhead Closets

By I. P. Hicks

In many plans, you will find what is called a bulkhead closet. These closets are located for the most part nearly or directly over the starting point of the stairs, and in order to get a closet in this particular place it is necessary to raise the floor of the closet above the story floor in order that there may be sufficient head room for the stairs. In the plans the architect simply marks on the plans "Bulkhead Closet," but rarely ever shows how high from the floor to put the bulkhead. This is left for the carpenter to figure out for himself. Therefore, it is necessary for the carpenter to know how to proceed to figure this problem out, for an insufficient amount of head room in the stairway will spoil the stairs.

There should be about 7 feet headroom for the average stairway. Of course, in case this much cannot be had we have to do with less; but in no case should we cut the headroom down to less than 6 feet, 6 inches, in the clear. We prefer the full 7 feet to anything less.

To find how much headroom can be had, first lay out the rise and run of the stairs to a scale from floor to floor, laying out the exact number of steps and risers. Now measure plumb up from some riser that will give you 7 feet headroom for your stair header, see sketch. Next, lay out the space the closet requires and measure plumb up from your nearest riser under the bulkhead 7 feet, or the same distance you took for the stair header, and this will locate the underside of the



How to Figure Headroom Under Bulkhead Closets.

bulkhead and show the distance above the floor to set the under side of the same.

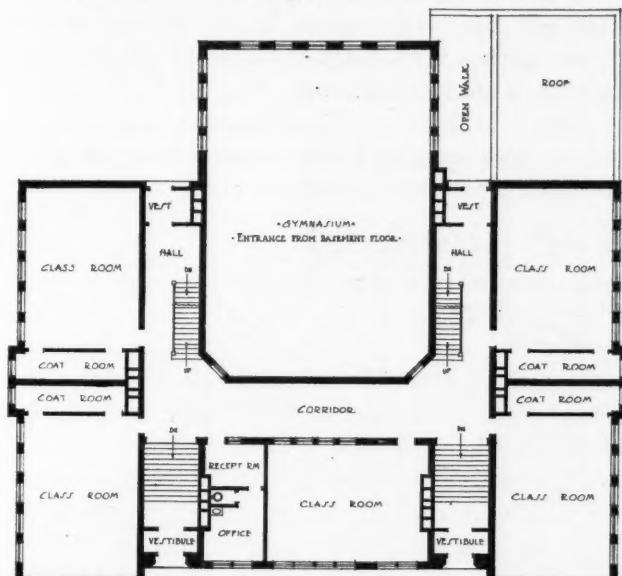
Our sketch makes it plain just how to lay out a job of this kind. Be careful in laying out stairways and bulkhead closets. Mistakes in this kind of work are very annoying, as well as costly, and it stands every carpenter in hand to be sure that he is right in this branch of building construction.

PUBLIC BUILDINGS

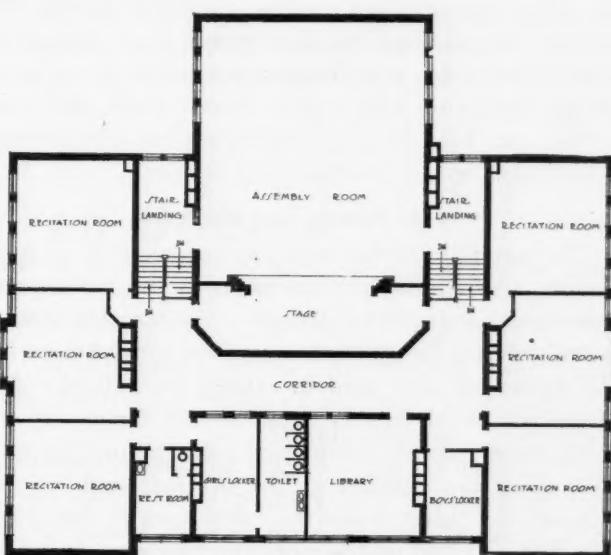
Modern School Building for Savanna, Ill.
PERSPECTIVE and floor plans are shown here for a new grade school to be erected this spring at Savanna, Ill. The building is to be finished by September first. Plans and specifications were prepared by the well known school house architect, Mr. G. W. Ashby, of Chicago.

A feature of this design is the method of handling

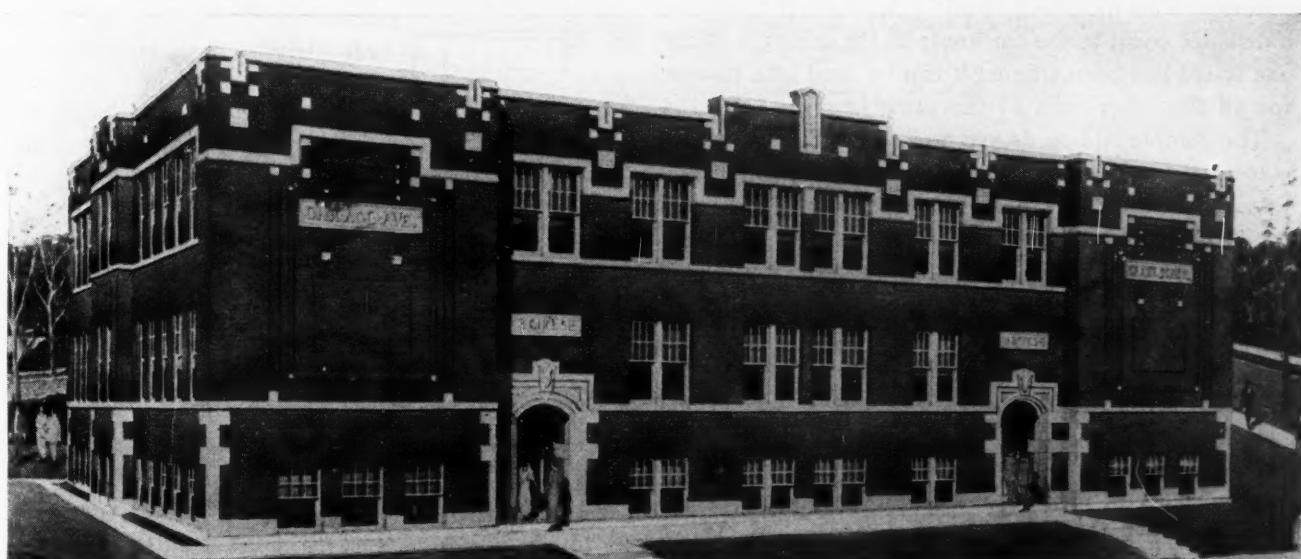
the sixth, seventh, and eighth grades in regular "high school" style. They have a large assembly room and go to recitation rooms for their classes. The five lower grades have each a room on the first floor. The gymnasium is in the basement and extends up part way through the first floor. The entrance to the assembly room, which is above the gymnasium, is on the landing of the stairs.



Main Floor Accommodates First Five Grades.



Second Floor Contains Assembly and Recitation Rooms for Three Upper Grades.



Beautiful Brick and Terra Cotta School Building to be Built this Spring at Savanna, Ill.



The Fancy Bungalow Cornice

HOW TO BUILD IT QUICKLY AND WELL—HOW TO WORK VERGE BOARDS, BRACKETS AND SHOW RAFTERS

By Peter Hedstrom, Architect

ONE distinguishing feature of the modern bungalow is the wide over-hanging eaves with exposed rafter ends and heavy verge boards and brackets in the gables. This is such a radical departure from the ordinary cornice construction that the builder who has had but little experience in bungalow building may be at a disadvantage when it comes to doing good and fast work. The method here described has been found by experience to give perfect satisfaction both as to time and results.

Verge Boards and Brackets

The material for the verge boards should be of good quality, free from sharp lateral bends and the top and bottom edges should be straight. The board is framed completely on the ground, using the same figures on the square as were used in cutting the rafters. The length of the board is equal to the length of the gable rafter plus the amount of projection at the side. Determine the position of the brackets and cut the notches for them; work the lower end to the shape required and nail on the moulding that goes up under the shingles and is used to hide the ends of the ceilings. This moulding should extend above the board a distance equal to the thickness of the ceiling. When one board has been framed it can be used as a pattern for all the other ones of the same length.

The completed boards are now fitted in their proper place in the gable, tight up against the sheathing and fastened temporarily. The boards should be from one-quarter to one-half an inch high to compensate the shrinkage of the board and the settling of the brackets. The brackets are now placed in their notches and securely fastened by nailing through the sheathing from the inside. When all the brackets are in place the verge boards are moved out to their proper place and nailed solid.

The frieze is now placed and the bed moulding fitted and tacked to it. As the ceiling progresses up the gable the bed moulding can be nailed solid. When shingles are used in the gable the frieze is not placed until the shingles are all on. This makes a quicker

and better job than cutting the shingles against the frieze. This method is sometimes used with lap and rustic siding.

To secure greater strength when the cornice is wide and the verge boards heavy, the top member of the bracket is extended through the sheathing and nailed to a header as shown in Fig. 1, or a bolt is used as shown in Fig. 2. Toenailing the board to the bracket does not give a very strong connection and as an added precaution in windy localities a piece of band

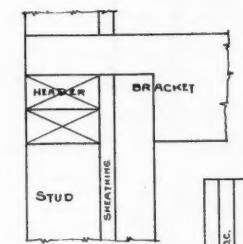


FIG. 1.

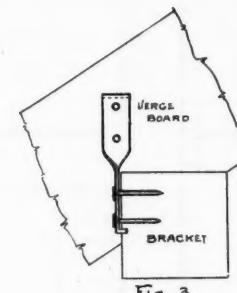


FIG. 3.

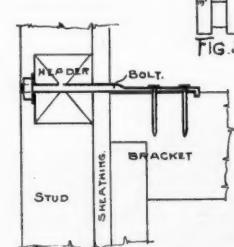


FIG. 2.

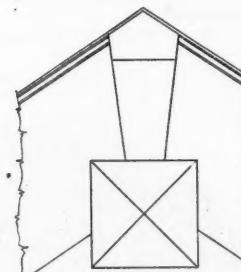


FIG. 4.

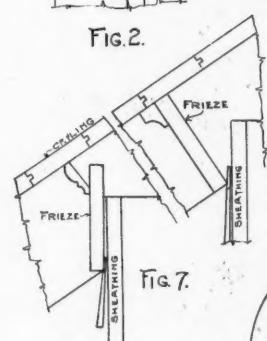


FIG. 7.

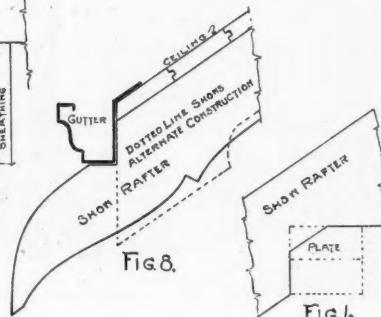


FIG. 8.

FIG. 6.

Details of "Bungalow" Cornice Construction.

iron, as shown in Fig. 3, is used. In this case the brace member of the bracket should be made to resist tension.

When it is necessary to splice a verge board make a square cut above the center of a bracket and nail a piece of galvanized iron over the joint on the inside. Do the same to the joint at the top. If a piece of iron is not handy use a piece of three-quarter inch board. It won't show if kept a little distance above the edge of the verge board.

With wide boards, especially if they are a little green, it is very hard to make a joint at the peak that will stay tight. To overcome that difficulty a piece as shown in Fig. 4 is nailed over the joint. It should be a little thicker at the top than the thickness of the moulding and taper as shown.

In localities where it is difficult to get verge boards of the proper size and length they can be built up of three-quarter inch boards, as shown in Fig. 5. This makes a verge board lighter and better than if solid. Put no cleat near the top, but after the boards are in place put in a piece extending six or eight inches on each side the joint. In ceiling up the gable cornice from one-third to one-half of the ceilings should extend to the second rafter.

The exposed rafter ends are usually made of 2 by

6 stock, about 6 feet long and nearly always sawed to a fancy pattern. Before the rafter ends are put in place the roof should be framed completely; all the roof boards, from about eighteen inches above the plate, should be on and all the collar beams and other supports in place. The rafters should be well supported as any sagging after the rafter ends are nailed will throw the outer edge of the cornice out of line.

The rafter ends are notched to fit over the plate and the main rafters should be so framed that there will be as much wood as possible above the outer edge of the plate. If the rafter ends are notched as shown in Fig. 6, and the plate cut a little to receive them, they will be a lot stronger. The show rafters are usually spaced from 24 to 32 inches O. C. If the main rafters are spaced 16 inches, place one at every other rafter; if 24 inches, place one at every rafter. If the spacing of the show rafters does not coincide with the main rafters a header will have to be used to nail the top of the show rafter to.

The frieze board and bed moulding should be placed before the ceiling is put on. Fig. 7 shows two frieze constructions and Fig. 8 shows two methods of fitting the gutter. The gutter can run past the verge board and stop on a line with the shingles or it can stop against the inside of it.

Cement Siding on Houses

THE LASTING VOGUE OF THE STUCCO RESIDENCE—HOW TO FRAME IT AND LATH AND PLASTER IT FOR BEST RESULTS

By H. B. McMaster

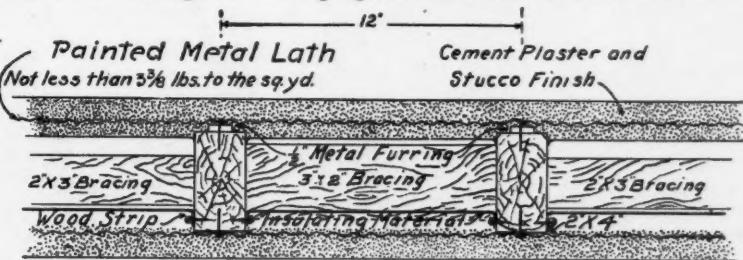
THE features of construction offering the greatest fire hazard in dwellings are the combustible roof and the hollow wall made of inflammable materials. The horizontal openings, such as windows and doors, perhaps come next. No matter how well the outer walls of a house will resist fire, if the flames gain an entrance to the building, the highly inflammable character of the contents insure speedy devastation and a particularly dangerous potential for a conflagration if openings to the outside are also made in other parts of the house so that a flue-like condition is created. When this condition exists everything is favorable for a "big blaze"; especially is this so when the outer walls of adjoining buildings are made of materials which we are accustomed to assemble to kindle a fire.

If the outer walls of all houses were built of non-burnable stuff, there would never come those widespread devastations of homes which periodically bring us up with a shock to a realization that things are not right.

If outer walls are of concrete, brick, tile or stucco and roofs of metal, concrete, tile or other incombustible covering, the possibility of conflagrations would be precluded.

Considerations of cost will prevent some home-builders from thinking of the more expensive types of wall referred to. He can, however, have a non-combustible roof that will be within his means and also be an aesthetic complement to a fire-resisting house which should not cost more than the house of frame with clapboards.

It is worthy of note that the development of our civilization has carried with it a constant "cutting and fitting"—a changing of fashions to meet new ideas



Detail Showing Section of Exterior Wall
Construction Using Metal Lath and Cement Plaster as Recommended by
the Associated Metal Lath Manufacturers.

and new fancies and the invention or discovery of new materials.

The study of this development as it has affected the shelter that man provides for his family is of the greatest interest.



Apartment House Group at Stoneham, Mass. Constructed of Metal Lath Both Inside and Out. These Buildings are Practically Fireproof.

For the purposes of this article, however, I am going to say that no type of construction is more recurrent; that is, *lives* better than stucco—the house with the plastered exterior—the kind people of Shakespeare's day were wont to live in. To the man who cannot build again to meet a changing fancy the appeal is strong when he has a house that he will not tire of. There is something about the combination of gray stucco color tones and nature's colors which holds the eye and never loses its charm. It ages gracefully, too; it does not begin to look dilapidated before the first winter's coal bill is paid—and speaking of coal, its insulating properties are good, which means economy in fuel.

Stucco may be applied to brick or tile, but we are trying to decide on a house for the man of moderate means; a house that will resist fire, be low in cost, have low cost of up-keep and be a joy for many years.

A form of stucco house that is absolutely fireproof is built of steel framing, metal lath and cement plaster. As men awaken to a proper appreciation of fire prevention, this type of house will become more popular, particularly with the lowering in cost that will come with improved methods of construction.

Without taking the man who builds homes too far into the field of fireproof construction, I want to tell one thing that he should know about the stucco house built on wood frame.

The method of constructing stucco houses most used has been to apply $\frac{1}{8}$ -inch sheathing to the studding, over

this lay water-proof paper, then fasten furring strips, over which the metal lath is stapled and then the cement plaster applied to the lath.

About ten years ago an architect in New England with an experimental turn of mind thought to leave out the sheathing. This results in a construction shown by the cross-section below.

He had a number of imitators; the idea went west and time has demonstrated that this is the best way to build the stucco house on frame. The cost is so much lower than the kind with sheathing that it is comparable with the ordinary clapboarded house. Its fire-resisting qualities are greater, it is more rigid, it is more sanitary, there is less wood to rot, and the metal is protected better from the elements because of the back-plastering.

Detailed specifications for the "A" type stucco construction may be had upon request of the Associated Metal Lath Manufacturers, 812 Wick Building, Youngstown, Ohio.

That association has gone to much trouble and expense to satisfy themselves that their recommendations in this respect are right.

It meets the requirements of the man who wants to spend anywhere from \$2,500.00 to \$10,000.00 for a dwelling house that will afford a large measure of protection from fire to his family and neighbors at the minimum of expense.

This construction is pleasingly exemplified by the picture of the apartment house at Stoneham, Mass., shown above. A minimum amount of wood has been used.

The forest service is co-operating with 54 railroads, mining companies, pole companies, and cities in making tests of wooden ties, timbers, poles, piling, and paving blocks which have been given preservative treatments.



Metal Lath and Stucco Combined with Stone Chimney and Porch Columns to Make Beautiful Buffalo, N. Y., Residence.

MACHINE WOODWORKING

Cabinet Making and Furniture Building

By Hugh H. Chambers

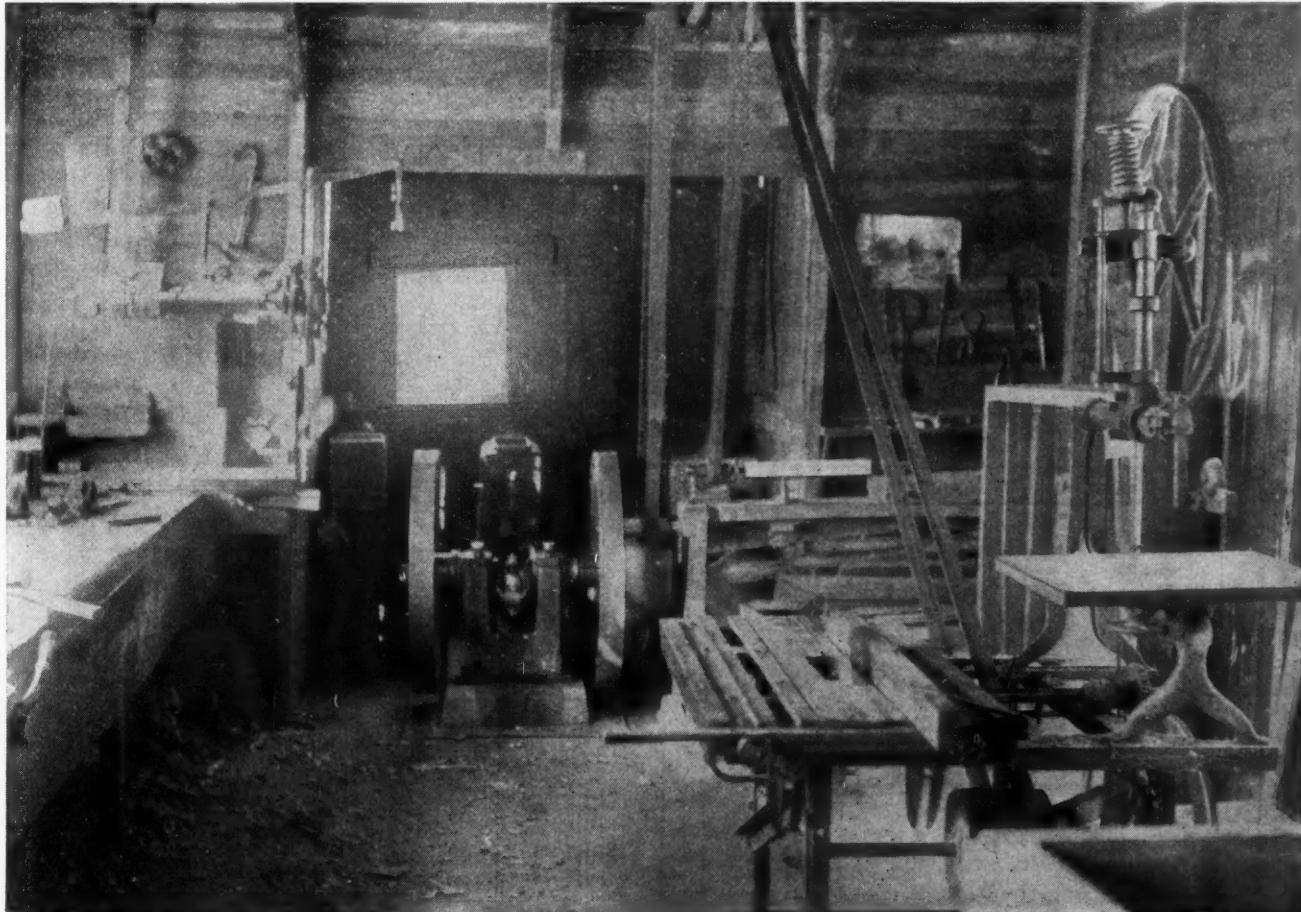
Power Shop Craftsman, Mahoningtown, Pa.

IN these articles I will tell you of my experience in this line of work from the beginning up to the present. The way I began was through a shop I built for my own private use. It was not long until neighbors began to come to have work done. I always did them a good job and charged them a reasonable price. I believe the quality of the work turned out does more to control the growth of a business than any other one thing.

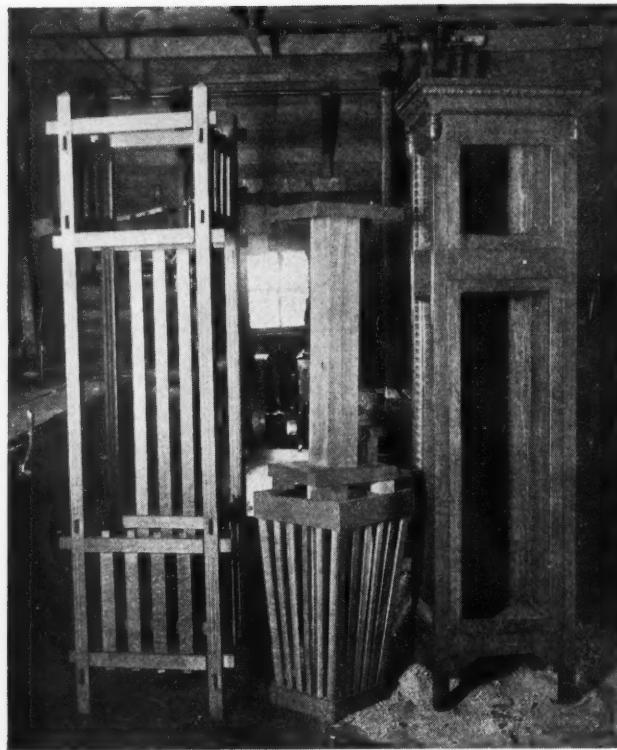
My shop, when it was first built, was 12 by 16 feet, and was of size sufficient for my work at that time; but it was not long until I had to build larger. My first machines were foot-power; these were later replaced

by power machines, being driven by a two horse-power steam engine. This was disposed of after using it about one year and a three horse-power gasoline took its place. I used this for one year, then sold it and bought a six horse-power gasoline engine, which I find is plenty large for the present. I have used steam, gasoline and electricity and I find gasoline to be the most satisfactory and economical power for the carpenter shop.

The other machines that I have are: a combination rip-saw, cut-off saw, band-saw; jointer and shaper; turning lathe; mortising machine; scroll-saw; emery wheel; and boring machine. A planer is not neces-



Interior View of Power Woodworking Shop of Hugh H. Chambers, Mahoningtown, Pa. Equipment Consists of Six-H. P. Engine, Combination Saw Rig, Jointer and Shaper, Turning Lathe, Mortiser, Scroll Saw, Emery Wheel, and Borer.



A Few of the Furniture Products of the Chambers Shop Almost Ready for Delivery.

ary, as the material can be ordered from the mill in any thickness desired.

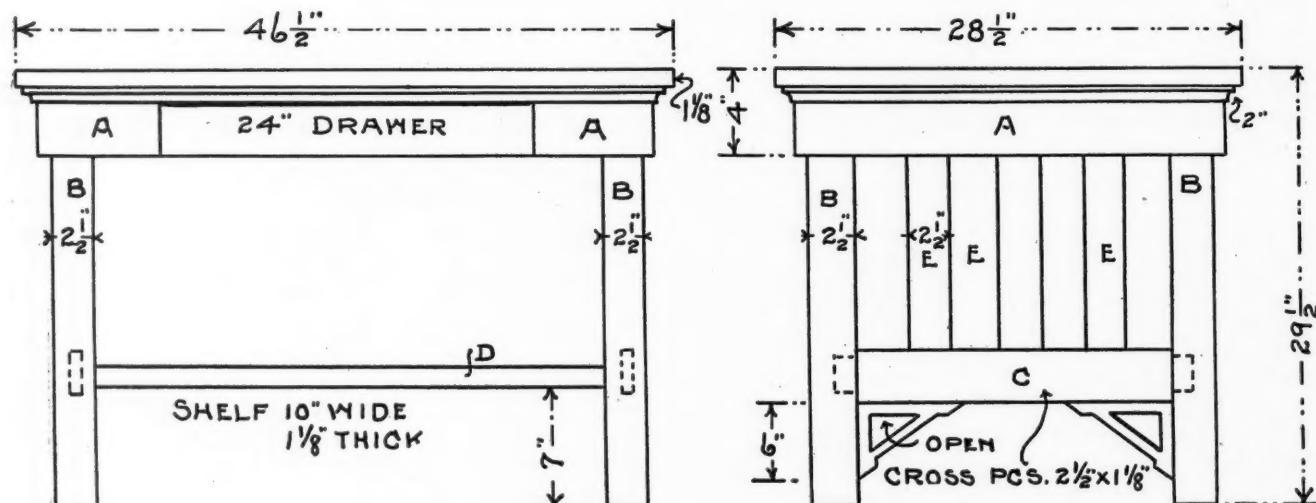
Part of the material that I use I buy direct from the saw-mill, such as quarter-sawed oak, wild cherry, etc. By so doing I can save about one-half over the retail price. It is very seldom that I get an order for anything made of any kind of wood except oak. One of the articles most in demand is porch swings. These are built in all sizes, from 4 feet up to 8 feet, with prices ranging from four dollars up to eighteen dollars, for the large sizes. I make no attempt to compete with the \$2.98 swings so much advertised.

One of the many kinds of work that comes to a shop of this kind that pays a good profit is furniture

repairing. However, it is often a difficult job, such as making a leg for an old-fashioned square piano, carving and painting it to match the others. Refinishing is a branch of the work that brings in good returns, but in order to do this successfully it requires quite an extensive knowledge of paints, stains, varnishes, etc. It is also necessary to keep quite a stock of paint on hand. In my own shop I have a room used for this kind of work and nothing else.

Then there is the old-fashioned bedsteads that have lately given their place to the modern metal ones. Many of these are made of solid black walnut, cherry, mahogany, etc. In the days these were made veneering was not done so much and wood that at the present time is considered valuable was in those days considered very common. I have seen walnut rails on the old-fashioned rail fences that were built many years ago but still in a good state of preservation. On this same farm there is a log house which has walnut siding. Many people are fortunate enough to possess one of these old heirlooms, little realizing what a beautiful up-to-date library table can be made from them. I have built from an old-fashioned bedstead a library table complete, with top 24 by 40 inches, with lower shelf, drawer, etc., and had material to spare.

Of course, when making a new piece of furniture from an old one, the old varnish must be removed and refinished in the new. I have tried many different kinds of varnish removers, but the best way I have found is with a steel scraper and sand-paper. It is a slow process, but a thorough one when done. Another useful article that can be made from an old bedstead is a box for storing clothing. These are generally made from those that are made of a cheaper wood. The way I make these is, first take the posts off; then cut the foot or smaller section exactly in the center (this will make the two ends); next cut the head or larger section in two parallel with a joint (this makes the back and front sides). The two

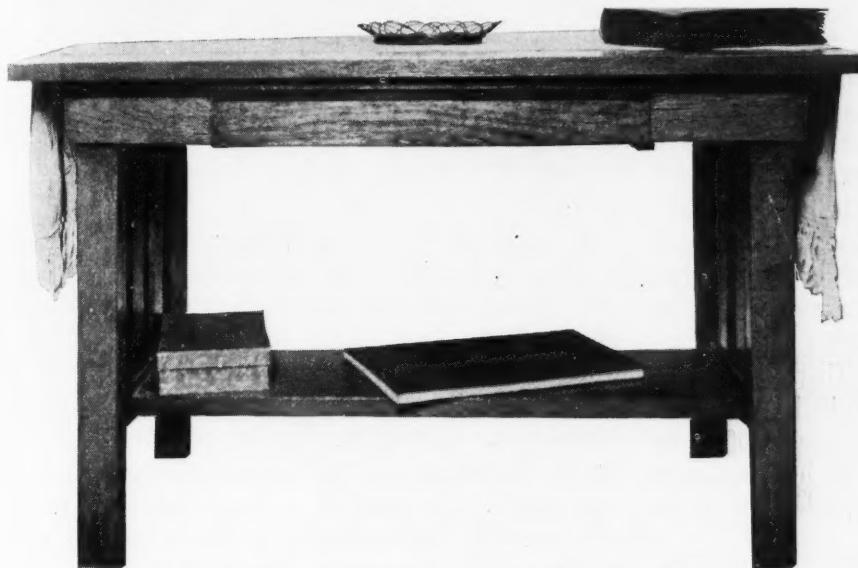


Dimensioned Drawings of Beautiful Library Table Shown in Photograph on Opposite Page.

boards from the sides of the bed will almost make the top or lid. All that needs to be bought is enough for the bottom and to finish the lid.

How to Make a Library Table

The library table described below is made entirely of oak except the drawer, which is white pine. It is 46½ inches long, 28½ inches wide, standing 29 inches from floor to top. The legs are made of 2½ square material, top and lower shelf are 1½ inches thick.



Solid, Well-Designed Library Table Built in the Chambers Shop.

The lower shelf is 40½ inches long and 10 inches wide. The drawer is made flush with rim. To make, first plane all material to a good, smooth surface, scrape it, then go over it with No. 1½ sand-paper, finishing up with No. 1. Then cut the pieces 1 inch longer than the finished top to allow for the final dressing. Joint them perfectly straight and square, then glue and dowel them together and set aside, leaving clamps on. Glue should be allowed to dry for thirty-six hours. Next make the rim marked A A A; cut two pieces 1 by 4, 42½ inches long (these are mitered on the ends), and two pieces 24½ inches long. Nail these together, square it up, and nail brace on to hold it temporarily. Lay it aside and cut four pieces 2½ by 2½, 27¾ inches long for legs. Mortise each on as shown on drawing for cross pieces marked C on drawing. Cut tenons on C 20½ inches between shoulders fit into legs, glue and fasten with a round head brass screw into each leg. Now cut lower shelf, marked D, 40½ inches long and fasten pieces marked C with three round head brass screws 2½ inches long, three into each end of shelf.

Take rim marked A and nail on the legs, keeping top edge flush with top of legs. The pieces marked E E E are 2½ inches wide and 15 inches long, mortised ½ inch deep at bottom into cross pieces marked C. Fur out on back of A sufficient to make the pieces E E E stand plumb, then nail well.

The brackets marked F F are cut from 7/8 material,

6 inches long each way. Cut four of these and nail to each leg, centering it on piece marked C. Take the top and place on legs and mark all around, allowing 2 inches of margin. Cut to this line and smooth up edges, rounding off corners with sand-paper. Lay the top wrong side up on bench, take the bottom part and set on top of it the same as the whole table turned upside down and fasten legs to top with four screws on a slope of 45 degrees into each one. Next cut out piece on one side for drawer, cut it with very fine saw so as not to leave a crack at each end of drawer when finished.

Glue and nail blocks on inside of AA after drawer head is cut out. Rabbet the drawer head on each end and bottom. The bottom is rabbeted 1 inch wide to allow for slides under finished drawer. These are made of ½-inch material.

The cove mould is now put on all around and on drawer head. The drawer is without knobs or pulls, as sufficient space is found on bottom for the fingers when pulling it out. To make a neat job of building a shaving should be raised with a small gouge for each nail, and after

driving and setting each nail should be glued down again. However, good results can be had by putting nail holes, if one is very careful in coloring putty.

Below is list of material:

STOCK BILL FOR LIBRARY TABLE

Oak.

18 ft. 1½ by 12 for top and lower shelf.
10 ft. 2½ by 2½ for legs.
12 ft. ½ by 2½ for pieces on ends.
12 ft. 1 by 4 for rim around top.
2 ft. 1 by 6 for brackets.
12 ft. 1 by ¾ for cove mold.
12 ft. ½-inch white pine for drawer.

Hardware and Paint:

1 lb. dark oak paste filler.
1 pt. clear varnish.
8 round head brass screws 2½ inches long.
16 1¼ iron screws for fastening legs to top.
½ pt. liquid glue.
½ lb. 6-penny finish nails.



Tool Grinding in England

Grinding edged tools is no mean job, to do it right. One does not have to be a sleight-of-hand artist at that; but to put finely tempered tools, as carving tools and the like, on the emery wheel, is not the right thing. I saw the cutlers at work in Sheffield, England, some years ago, and each one had a seat up over a large sand grindstone, grinding blades. They do not use the emery wheel.—W.M. C. JASBURY.

“Every Man Owes it to His Family, Himself, and the Community, to Save and Establish a Home. He Makes a Better Citizen in Times of Peace or War. No Man Will Take Up a Gun in Defense of a Boarding House”

THE MAN FROM THE LUMBER YARD

“Every one of our readers has something to sell, his labor if nothing else. Don’t forget that we want to help you in every possible way.”

—EDITOR.

IN the good old days of sassafras tea, when there was a bottle of bitters or sarsaparilla on the pantry shelf to cure every ill, we occasionally had a medicine that claimed to cure every ailment. I always had a suspicion of the liquid that professed to cure an ache whether in the brain, back or belly.

These are the days of the specialist and when I, a mere distributor of wooden ideas or other things, venture to give a thought on advertising, I am speaking in general terms, and to those who cannot avail themselves of the services of an expert. There is nothing mysterious about advertising. If you had a cinder in your eye and could drop into a physician’s office to have it removed you would do so. If, however, you could not get an expert to remove the cinder you would do it yourself.

Simply because you cannot seek publicity, like the dry goods man or the druggist, is no reason you should not let people know, in your own way, what you have to sell, and make friends the same as they do. You probably eat different food and think along lines other than the druggist does. There is just as much reason in your talking in a different way.

Did you ever consider the bigness and freshness, and limitlessness of your work, as compared to the

man housed inside of four walls, breathing poor air and being circumscribed by custom and fashion?

A builder in an eastern village conceived the idea of utilizing a fine oak that stood on a vacant lot, desirably located, in connection with a breakfast room of a bungalow.

He sketched the plans and idea, and submitted them to a bride who had a heavy pocket book and an artistic temperament. In a day’s time the lot was bought and contract let. That village has a number of homes which show the ability of this man to use his head.

I was talking to a contractor some time since about advertising. He declared that he didn’t have any use for it. In actual fact, his method of advertising was very subtle. His personality commanded the respect of everyone. His cordiality made friends in every circle, and his name was prominent in various fraternal and public organizations.

Everyone is not constituted as is this man, but everyone can and should utilize his own personality to the greatest possible extent.

If you feel that you are not a good mixer, all the more reason for your studying how to be affable and congenial. Regardless of your ability to meet people and to deliver your message personally to one at a time, you would do well to use space in your local paper. You gain two things by this. The newspaper people are in close touch with everything that is doing, and if you are using space, they naturally feel friendly and will help you in every possible way. Frequently this indirect benefit is the major result.

When you have completed a building of some individuality, have the several newspapers in which you are using space give you a “write up” in the shape of a news item. If some member of your family has a camera, get a good picture of the house of which you are proud to be the builder. A half-tone would cost about \$1.50. Your local paper will publish it. This is excellent publicity, and will stamp you as being very enterprising.

Local conditions vary. I will be mighty glad to help any one who feels he has special problems to solve.

You can secure a great deal of publicity by using one inch single column space. Use your own ideas as to what you want to say. You can have much valuable aid from the newspaper men about the way to say it.



Are **YOU** Protected?



Have the Newspapers in Which You are Using Space Give You a Write-Up—They Will be Glad to Do It.

Here are a few suggestions:

**PUT A NEW FACE ON
YOUR HOUSE**
TELEPHONE
CENTRAL 711 **SMITH**
FRONT PORCH BUILDER

**A HOUSE TO FIT
YOUR FAMILY
AND PURSE**
TELEPHONE
CENTRAL 711 **SMITH**
BUILDER OF HOUSES

**WANT TO SEE THE LATEST
CONVENiences
AND COMFORTS?**
TELEPHONE
CENTRAL 711 **SMITH**
DESIGNER OF HOMES

**WANT AN OUT-DOOR
SLEEPING PORCH?**
TELEPHONE
CENTRAL 711 **SMITH**
BUILDER OF
FRESH AIR BEDROOMS

**FIGURING ON A
GARAGE, BARN OR
SUMMER HOUSE?**
TELEPHONE
CENTRAL 711 **SMITH**
BEST BUILDING BUILDER

**WANT A
COMFORTABLE AND
CONVENIENT HOME?**
TELEPHONE
CENTRAL 711 **SMITH**
BUILDER OF
MODERN HOMES

shows hard lines and is seedy in his appearance.

We are always delighted, with a big D, to have the old friend look us up when the coat, the hat and the care-free face show prosperity. Such a visitor came into my office several days ago. None of us had expected much of him when he was a youngster. He was a plodder, just an ordinary, very ordinary, sort of fellow. Of course I pumped him to find out the why of his prosperity. I found it was based on (1) saving; (2) judicious investments. He credited his success to his wife, and a friend in the bank where he kept his savings.

We know there would be no boys if there were no mothers. Few of us realize how many husbands owe their becoming real men to their wives. My friend's wife began training him from the first, and every week salted down part of his earnings. His first investment made a big profit. It was the old story that has occurred so many times.

A piece of property had to be sold quick. He had part of the purchase price, and his banker helped him out. Owning it at good value, he was able to turn it quickly. With his wife as his principal adviser, he tackled one deal after another until he counts his worth in six figures.

Every man owes it to his family, himself and the community to save, and to establish a home. He makes a better citizen, in times of peace or war. No man will take up a gun in defense of a boarding-house.

Opportunities don't come to the man who is not prepared for them.

Take it from a fellow who has lived and observed; you will never regret when you have reached the three score of years that you had the saving habit.

Yours for that secure feeling,

THE MAN FROM THE LUMBER YARD.



Chattanooga Builders Organize

Fifty-six contractors and building supply dealers of Chattanooga, Tenn., have organized the Chattanooga Builders' Exchange. Temporary organization was perfected at the first meeting by election of C. M. Willingham, president, and Lee K. Wert, secretary. Mr. Willingham is president of Willingham & Co., lumber manufacturers, and Mr. Wert is secretary-treasurer of the Lookout Planing Mills. The committee on permanent organization is composed of Mr. Willingham, W. E. Love, of the Mountain City Stove & Mfg. Co.; F. B. Sloan, of Sloan & Co.; Anthony F. Hahn, contractor; and Gus A. Wood, master plumber, gas and steam fitter. There are a large number of contractors and supply dealers in the "Dynamo City" eligible to membership in the new organization, and it is anticipated there will soon be at least 100 enrolled. The next meeting will be held at call of the organization committee, which in the meantime has applied to the National Builders' Exchange for a charter. Permanent headquarters are to be established in some downtown office building, in charge of a salaried secretary. Co-operation in the purchase of materials, and adoption of a comprehensive system for receiving architects' specifications and bidding on them, are among the objects of the organization.

I note in the large number of letters that come into our office an almost entire lack of the artistic in letter-heads used by contractors and builders. Remember that you are frequently judged by your stationery, and if you would make a favorable impression with your letters, your printer must do his part. It is poor economy to have inferior printing.

The Man Who Arrived

Sometimes, not always, one is pleased to have an old boyhood chum look him up, even when the old chum



EDITOR'S NOTE—Our readers are urged to make full use of this Department. Put your concreting problems up to us; also write us your experiences and accomplishments in the Cement field for publication here.

Rubble Concrete

ITS BEAUTY AND STRENGTH AND HOW TO DO THIS CLASS OF WORK
TO BEST ADVANTAGE

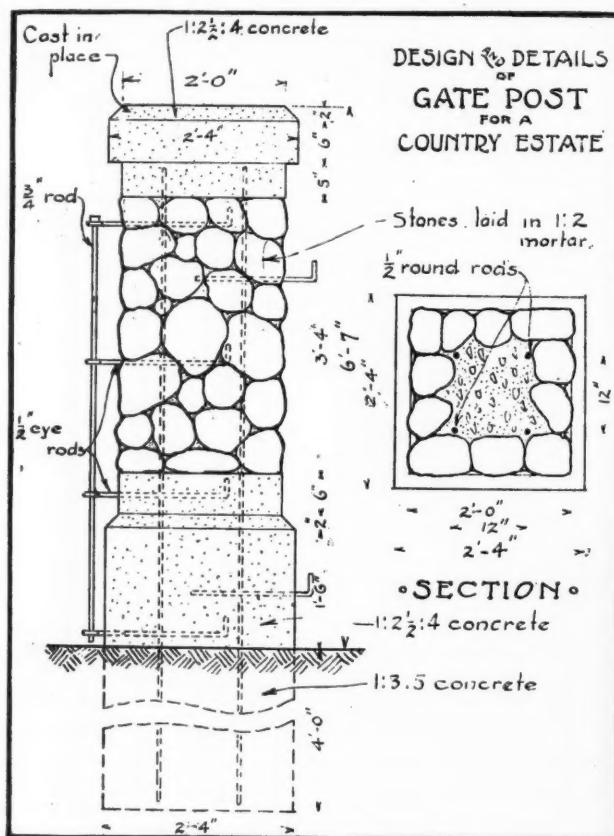
By H. Colin Campbell, C. E.

RUBBLE masonry construction makes a strong appeal to many persons; and among the successful uses of concrete is its application in easily securing rubble effects. In some sections of the country it is not uncommon to find a liberal supply of raw building material in the form of cobble-stones or "niggerheads," as they are often called, lying around the ground and literally in the way. Concrete offers an opportunity to use such stones profitably, and the results can easily be made artistic.

Rubble work lends itself to so great a variety of

applications and each case is so largely a matter of individual treatment that the subject can be best presented by illustrations. Those used in connection with this article will suggest sufficient possibilities to enable the ingenious worker to extend the application of concrete to rubble work.

Of course, one must know something of the requirements of rubble construction to insure that the work will be successful. In the accompanying drawing there is shown a design for a rubble gatepost. In this construction the concrete for that portion of the post below ground should be mixed in proportions of 1 sack of Portland cement, 3 cubic feet of clean, well graded sand, and 5 cubic feet of well graded, hard, durable gravel or broken stone, ranging up to 1 inch. Concrete for the work above ground (for the interior of the post) should be mixed in proportions $1:2\frac{1}{2}:4$, and the mortar in which the cobble-stones are embedded should be mixed in the proportion of 1 sack of Portland cement to 2 cubic feet of sand. It will be noticed that a form is used to facilitate laying the stones in



Working Drawings of Reinforced Concrete and Rubble Gate Post for Country Estate.



Smaller Stones are Used for Smaller Structures Like This Spring House.



Photograph of Artistic Rubble Concrete Estate Gateway. These Posts will Never Fall Down.

place. The cap stone, which is 2 feet 4 inches square, is cast in place and the post is reinforced by four $\frac{1}{2}$ -inch rods placed immediately back of the cobblestones, and at each corner of the concrete core.

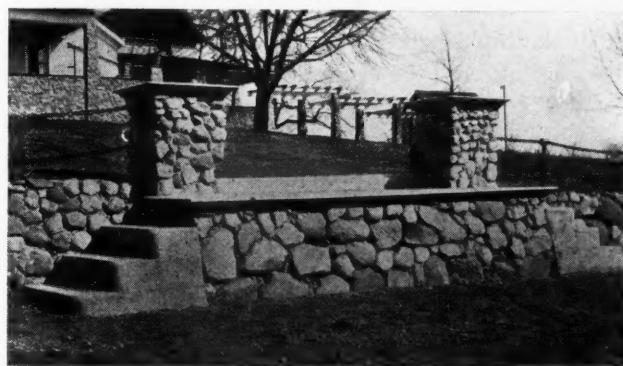
Concrete should be mixed wet enough so that it will settle to place of its own weight with very little puddling or tamping, but not wet enough to cause the mortar to separate from the gravel or stone.

After the forms have been removed this mortar is picked back from the face and the surface of stones cleaned with a solution of one part muriatic acid and three parts water, then thoroughly washed with clean water.

The photographs show other possibilities of using concrete for ornamental rubble work around home grounds.

Distinction must be made between concrete surfaced with rubble for ornamental purposes and rubble concrete used for structural purposes. In the latter, large fieldstones or "niggerheads" are often used in mass work, such as foundations, piers and abutments, and retaining walls.

Experience has proved that the best way to place structural rubble concrete is first to put in the forms



Rubble Concrete Terrace and Posts Make a Striking Landscape Feature.

a few inches of concrete mixed to a rather quaky consistency and consisting of 1 part of cement to 2 parts of clean, coarse and properly graded sand, and 4 parts of clean gravel or crushed stone, varying in size from $\frac{1}{4}$ inch to $1\frac{1}{2}$ inches. Large, hard, clean cobblestones previously wet may then be laid on the concrete in the forms, then more concrete added, taking care that each stone is completely surrounded by a thick mass of concrete so as to separate it from other stones. Then another layer of concrete is placed, and so on. Forms should not be removed until there is no question that the concrete will be self-sustaining or will sustain the loads to be carried.



Money Spent for Roads

ACCORDING to the report of the Joint Congressional Committee on Federal Aid to Good Roads, the annual expenditures for road improvement in the United States amount to about \$204,000,000. Automobile license fees amount to about \$8,000,000 annually. County, township, and district road bonds were voted in 1913 to the amount of \$50,635,000.

Concrete Street Markers



ANY CARPENTER can find profitable employment for much of his spare time if he directs part of his ingenuity to producing various classes of concrete products. Increasing use of concrete in fence post construction suggests extension of the fence post idea. Street markers are an example; and there is no reason why an entirely satisfactory marker cannot be so made. Any inscriptions or lettering desired can be inlaid by the method

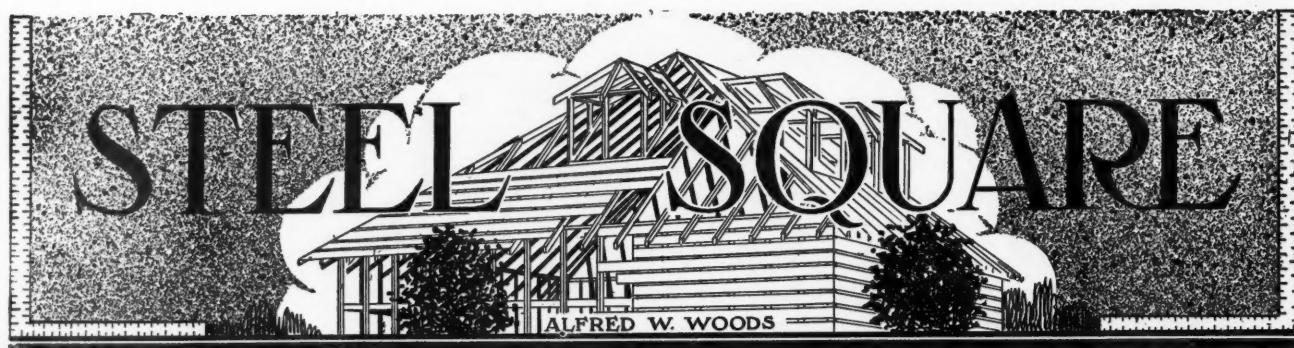
commonly employed among all workers in ornamental concrete products, namely, by placing against the face of the mold, paper upon which selected color aggregates have been glued so as to form the desired lettering or by putting pattern letters in proper position on the face of the mold, thus reproducing these letters in the form of depressions in the posts; or, if desired, bronze letters may be arranged on the face of the form and secured to the post by means of lugs attached to the letters and embedded in the concrete.

The accompanying photograph shows a post in which letters are outlined by means of depression. A post similar to this should ordinarily stand about 4 feet 6 inches above ground and 3 or $3\frac{1}{2}$ feet in the ground. Dimensions should be 6 inches square at the top and 9 inches square at the bottom, thus introducing a batter of $1\frac{1}{2}$ inches on each face of the post in $4\frac{1}{2}$ feet. Below ground the post may be uniformly 9 inches square.

Mold construction for work of this kind is simple and needs no description other than to mention that 1-inch fillets should be inserted so as to give the post beveled corners. As street markers are not subjected to strains, a $\frac{1}{4}$ -inch rod in each corner of the post will be sufficient reinforcement. These rods should be placed not more than 1 inch from the surface of the bevel at corners.

In work of this kind a 1:2:3 concrete mixture is preferred, in which the coarse aggregate consists of particles ranging from $\frac{1}{4}$ inch up to $\frac{3}{4}$ inch in size. Surface effects of various kinds may be produced by using selected aggregates and after forms are removed, washing the surface to expose the aggregate.

Street markers of this kind are permanent and permanence is a prime requisite in all construction today. Considerable variation in design is possible, dependent upon the ingenuity of the builder, which may display itself, for instance, in setting the letters in depressed panels although, as a rule, simplicity in design should be the aim.



How to Use the Steel Square

A CONTINUATION OF WOODS' ANNUAL SERMON TO THE BEGINNERS, ILLUSTRATING THE GOVERNING PARTS IN FRAMING A TEN-SIDED ROOF WITH A TEN-INCH RISE

By A. W. Woods

GOOD morning, boys! Glad to have you here again, bright and fresh, ready to take up the work where we left off last month. You will remember we only laid the foundation, or rather found the figures to use on the tongue for proceeding with the framing of the rafters for any desired pitch given the roof. For fear some of you may have forgotten what those figures are, or may not have the last number of the AMERICAN CARPENTER AND BUILDER at hand, we will repeat the figures to use on the tongue for a ten-sided building, as follows:

$12\frac{5}{8}$ for the seat cut of the hip rafter.

12 for the seat cut of the common and jack rafter.

$3\frac{11}{12}$ for the side cut of the jack to fit against the hip.

$4\frac{1}{8}$ for the side cut of hip rafter where they come together at the center.

Now, remember these are stationary points for any pitch we may desire to give the roof. Even if there was no pitch at all, yet with all of the rafter framed as they would appear in the plan, showing each in its place, these figures with 12 on the blade would give all of the cuts as well as for finding the respective lengths for all of the pieces that enter into it. Twelve is used on the blade, because it represents the run, and if there is no pitch it remains at 12; but when there is a pitch given the roof, then it is the figures that represent the length of the pitch for a 12-inch run.

Thus, for our lesson, the rise is 10 inches to the foot run of the common rafter and we find its length to be $15\frac{5}{8}$ inches.

In Fig. 5 is shown the figures to use for the seat and plumb cuts of the common and jack rafters (the tongue giving the former and the blade the latter).

For the side cut of the jack, it is the length of the common rafter (which is represented from 12 to 10 = $15\frac{5}{8}$) taken on the blade and $3\frac{11}{12}$ on the tongue. The blade will give the cut to fit against the hip. These same figures will give the cut across the face of the roof boards to fit over the hip; the tongue giving the cut.

The application of the square is shown for the above

cuts in connection with this figure at A and B, respectively. The latter cut mentioned is the same as the flare for a hopper, but for its miter we will illustrate a little later on.

In Fig. 6 is shown the treatment for the hip, which will be seen is the same as for the common rafter, though, of course, different figures are used on the tongue, as before described. $12\frac{5}{8}$ and 10 give the seat and plumb cuts, while $16\frac{1}{8}$ and $4\frac{1}{8}$ will give the side cut of the hip where they come together at the peak. The application of the square for these cuts is shown at C and D; the latter must be right and left and for that reason the working line is taken at the center of the back of the rafter.

There is another question we wish to call attention to at this time—that is, the backing of the hip; not a very important one in this case, but it should be known and what the proportions are that determine it. To get at this, we will go back to the figures that give the miter for a ten-sided frame, which we illustrated in Fig. 1 and shown to be 12 and $3\frac{11}{12}$. The latter being so near 4, we will call it that and consider it as twelfth ($4/12$) of one-half of the hip's thickness and this amount set off on the seat cut line will give the gauge line on the side of the rafter from which to remove the wood to a line on the center of its back (see illustration at E). But, as we said before, in a roof of this kind the amount to remove is so little, it would hardly be noticeable.

But whether the hip is backed or not, it should be remembered the depth of the seat cut should be regulated by it. This is not generally understood, even among carpenters that are considered good framers. The vertical distance from the top edge of the rafter down to where it passes over the edge of the plate, whether the hip is backed or not, should be the same as that for the common rafter and as the application of the square is on the side of the rafter, which is half of its thickness from the corner, there must be an extension of the seat cut beyond the vertical line above referred to, so as to clear the corner of the plate on which the rafter is to rest.

Now, then, we will take up the miter cut of the roof boards that we referred to in the early part of this article. Some of the old chaps will laugh at the idea of a miter cut for the roof boards, because it is a thing that is out of sight; that is, after the shingles are on. In fact, they do not try to make a decent cut at all; they just make a stab at it and let it go at that, so long as they get a fairly good nailing space, it is good enough and they never take the pains to look back of it all and learn why or what the proper proportions are to take on the steel square to get a tight fitting joint. It is true that it is not necessary to make a water-tight joint for a place of this kind; but, on the other hand, if a tight fitting joint is wanted for some place that requires it, then these fellows that are disposed to laugh, are sadly up against a problem that will sorely tax their ingenuity and more than likely have to turn the job over to some one else.

Therefore, it is well to know the cause and effect, so that a tight fitting joint can be knowingly made when the same is required and that, too, without hesitation,

at right angles to that of the common rafter and directly under it, this length taken on the blade and $3\frac{11}{12}$ (same as for the level miter) will give the cut; the tongue giving the angle.

NOTE.—In the cut across the face of the board, it is the length of the common rafter; but for the miter, it is the length of the under pitch. These proportions, of course, are based on a 1-foot run.

If we were to invert the pitches, letting the under pitch represent the common rafter, then what was the face cut in the former becomes the miter cut in the latter.

Take it in the case of a square corner and a $\frac{1}{2}$ pitch for the common rafter, then we are at the equalizing point in both the level plane and from horizontal to vertical. Consequently we have a duplication of parts as the run and rise are the same, the upper and under pitch are the same and consequently we have but two sets of figures to use on the tongue—12 and 17—from which to develop all of the cuts contained in the $\frac{1}{2}$ pitch for a square corner, leaving no way for readily

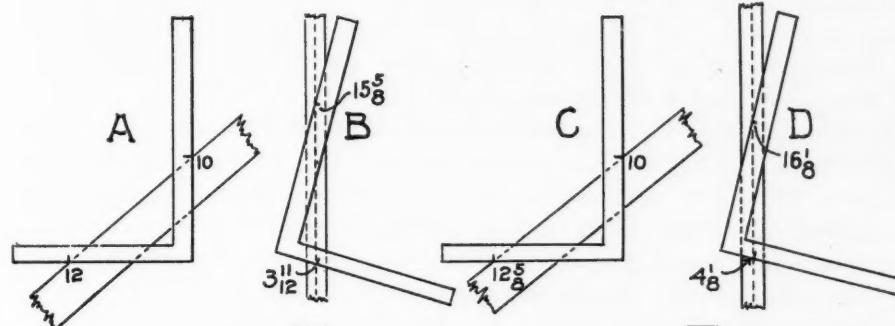


FIG. 5.

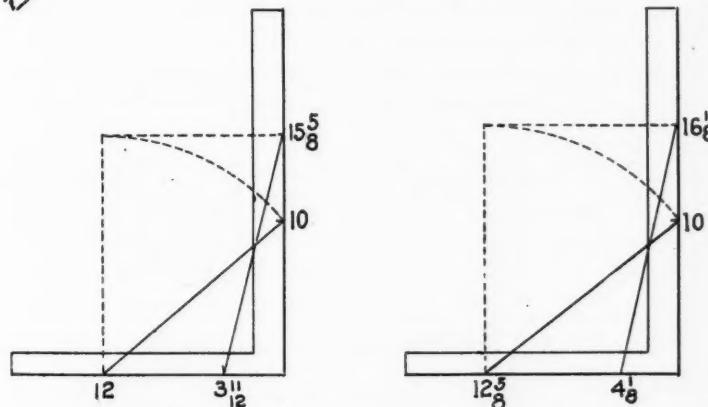


FIG. 6.

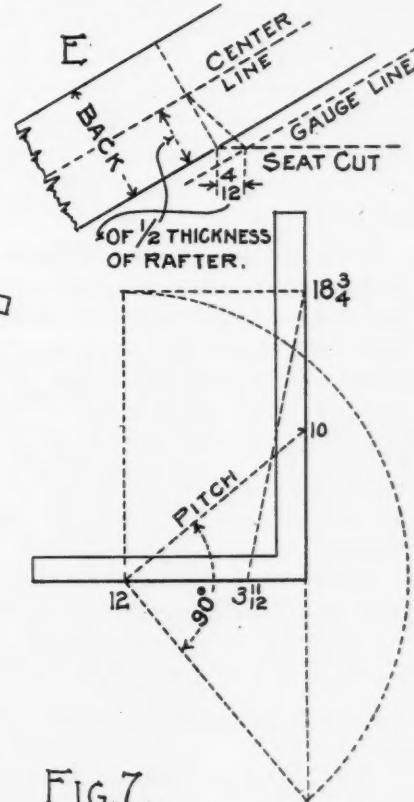
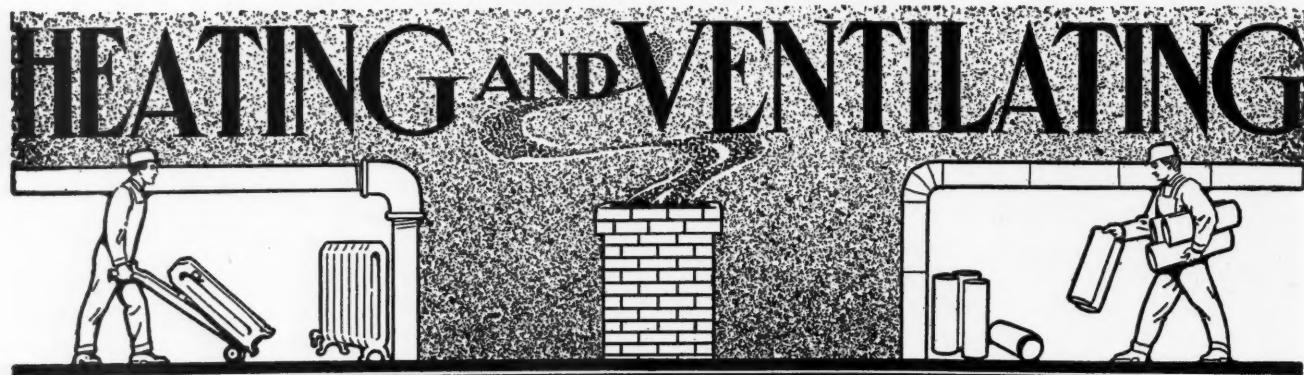


FIG. 7.

for the time is at hand when the young man coming on to the scene of action must have special training in order to hold the best paying positions. Employers are ever on the lookout for the best men, because it is simply a business investment with them and they naturally want the best because it is the cheapest in the long run.

Now, there are a number of ways of arriving at this cut, but, as shown in Fig. 7, is probably as self-explanatory as any. From this it will be seen that one of the parts to take on the square is determined by the length of the under pitch, which is simply an imaginary line

distinguishing what are the governing points that determine the different cuts; as, for instance, 12 and 17 will give the side cut of the jack; the face cut of the roof boards; the miter for the roof boards, also butt joint for same. Four in one, yet each arrived at by its own part that it occupies in the roof. With this we close for the present, but we have not said all that we wanted to say, as there are a number of points—such as running the square, making the proper deductions for side cuts to fit against hips, etc. In connection with this we will illustrate the layout of our subject, showing every part.



How to Prepare for the Heater and Pipes

SECOND ARTICLE—VALUABLE HINTS FOR CONTRACTORS AND BUILDERS REGARDING THE HEATING PLANT AND ITS RELATION TO THE REST OF THE JOB (CONTINUED FROM APRIL ISSUE)

By C. S. Stout

(Secretary, Marshall Furnace Co.)

If you know before you start work just where the heater is to be set in the basement, where the registers will be placed and where the pipes will run, a lot of unnecessary shifting and cutting will be saved.

Oftentimes the shifting of a sill 3 or 4 inches will save cutting it one-half or entirely off—the spreading of double joist 2 or 3 inches will save them from a like fate—the studding can be placed so as to obviate all necessity of changing later—arrangements can be made for pipes in sliding door partitions, etc.

Then, too, before the building is started, doors can be arranged to swing in the opposite direction or from the other casing if necessary to prevent them coming over floor registers or in front of side wall registers, closets or dead spaces can be arranged so as to get pipes for extra large or badly exposed rooms on the second floor in favorable locations and have them of much greater capacity and efficiency than if forced to use only the space between the studding of inside partitions.

There are a thousand and one things that can be arranged if the heating contractor has a chance before the building is erected—things that will save both owner and contractor much time, labor and money.

Good Draft and Satisfaction Depend on Chimney Construction

The first requirement for a successful heating system is a good draft—one that will provide suitable combustion to get the greatest possible value out of the fuel burned—and a good draft is only secured by having a properly built chimney.

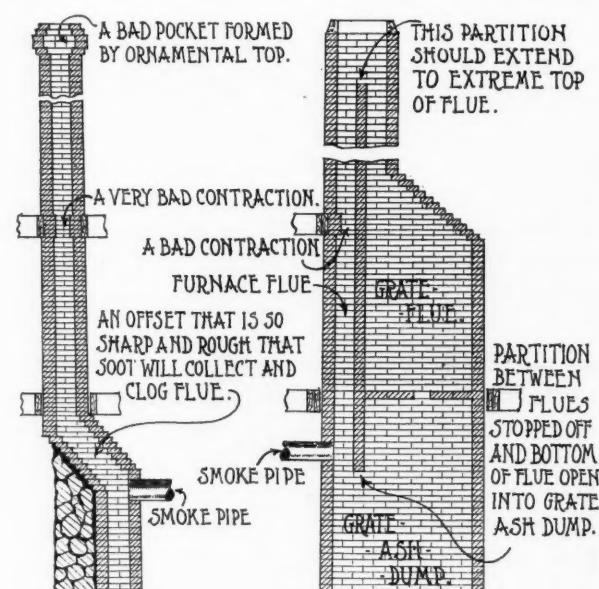
As you build the house, plan the flue for the heating apparatus, entirely for the heating apparatus and nothing else and large enough and high enough so that there will be no mistake about the results.

At least 50 per cent of all the troubles with heating apparatus is due to sluggish draft and defective flues; and a very large percentage of fires that are laid at the doors of heating apparatus, overheated pipes, etc., are really due to defective workmanship on chimneys. The

mason is simply told to build the chimney such and such a size and then he can do what he pleases; and through improperly struck joints in the masonry, inside of partitions or in attics sparks are driven out, coming in contact with bone dry lath and studding—starting fires that the papers next morning say started from the furnace.

If there is to be a range in the kitchen or a laundry stove in the basement, it is best to plan a separate flue for them. If there are to be gas heaters, instantaneous heaters, tank heaters, etc., that must be vented into a chimney, it is best to plan to keep them out of the flue for the furnace—even if a separate flue has to be built for them; and the owner will save enough fuel in the first year or two to pay for it.

If it is necessary to run a kitchen range or a gas heater pipe into the same flue with the furnace, be very



† FIGURE 1 †
SHOWING SEVERAL DEFECTS
IN FLUES.

† FIGURE 2 †
THIS ILLUSTRATES SEVERAL
BAD THINGS IN CHIMNEY BUILDING.

Common Mistakes in Flue Construction.

careful to see that an air-tight damper is put in the pipe of such range or heater and have the owner take care to have the damper turned off when the range or heater is not in use; but, of course, if a separate flue is built for range, heater vents, etc., forgetting to turn dampers will not affect the draft.

If the mason leaves a clean-out opening in the bottom of the chimney there must be an air-tight cast-iron door for it fastened in place, so that there will be no air leakage around or through it.

How to Build a Good Chimney

Some of the cardinal principles of chimney building are as follows:

All chimneys for furnaces built in new houses should be run from the ground up on solid substantial foundations extending at least below the frost line and carried at least three feet above the highest point of a flat roof and two feet above the highest ridge or comb of a peak roof. The walls of flue to be of good grade hard brick laid in cement mortar and every joint pointed up smoothly inside and out.

The chimney should not be less than 8 by 8 or 8 inches round and from that up to 12 by 12, depending upon the size of the heater and the smoke pipe connecting to it.

A flue lined with tile is better in every way than an unlined one because it is smoother, tighter and less liable to chill and is not affected so much by moisture and the creosote elements formed by condensation of gases. Do not under any consideration plaster inside of flue, for it will eventually become loose, drop down, and clog opening and drag the mortar out from between the bricks, making openings that are a fire hazard. Carefully struck joints are superior to plastered interior if you do not use tile lining.

Do not allow the mason to stop tile lining if used, at first floor line or at thimble opening; lining should go clear down to bottom of flue.

The chimney should be built straight, if at all possible, from the bottom to the extreme top, of exactly the same size and shape throughout its entire length and with a continuous partition between it and any adjacent flue. If, because of the design of the building, it is necessary to offset the chimney, it should be pulled over gradually, carefully beveling off the edges of the brick to make interior smooth. Never under any circumstances slant a chimney more than 30 degrees from the perpendicular. See Fig. 1.

Inside flues are preferable to outside as far as efficiency is concerned.

Avoid all pockets and contractions and do not allow furnace flue to open into a common ash dump with a grate flue.

Partitions between adjoining flues must run to extreme top of chimney or back eddies will result. See Fig. 2.

Allow no wood casing, furring, lath or other wood-work to be placed in, against or within one inch of any chimney, except when protected by asbestos or fire-resisting material or the chimney be plastered on the outside.

At the completion of the chimney have mason clean

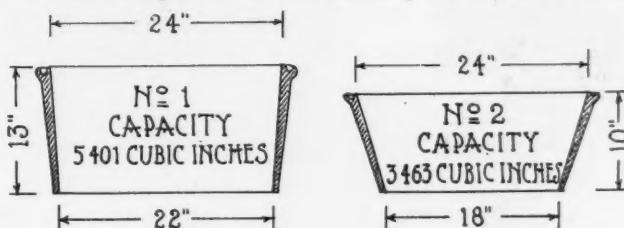


FIGURE 3
Fire Pot Capacity Depends on More than Diameter.

out all rubbish and fallen mortar and bricks and leave it clean and smooth inside.

The chimney is the most vital part of any heating system; it's the lungs of the plant, and as long as the future comfort of the occupants of the building depends upon it, it is better to have it right first than to tear it down and build it over later. The contractor who helps the owner to secure a safe and adequate chimney and a comfortably heated house is surely not going to lose anything by it.

(Continued in June Issue.)



This Ladder Will Not Slip

A new devise has recently been placed on the market that will hold a ladder so that it is safe to walk under it even on



Suction Feet Won't Let this Ladder Slip.

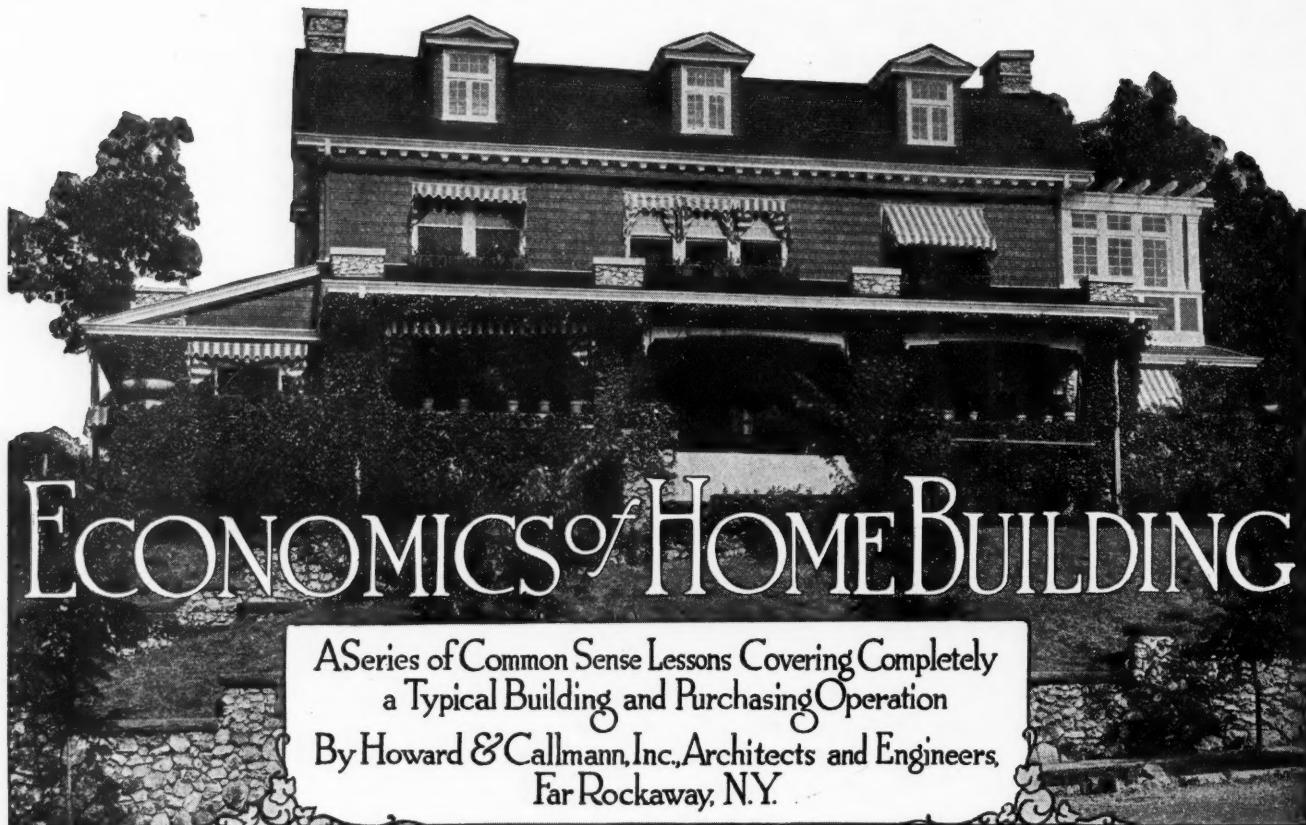
Friday. It is a suction foot grip that is placed on both ends of the ladder and is said to eliminate all the danger of slipping or sliding that happens quite frequently with disastrous results. The manufacturers say that this ladder can be used on a very steep angle on polished iron work, glass, stone work, concrete, or any smooth material, and that it will not slip even under these circumstances.

Another advantage claimed for this ladder is that it can be used on polished floors, signs, etc., and will not harm them in any way and at the same time the person using the ladder will not be in any danger of having the ladder slip out from under him.

This devise was awarded a silver medal at the American Exposition of Safety and Sanitation.



THESE'S a lot of room at the top—but no railings to prevent falling off.



ECONOMICS OF HOME BUILDING

A Series of Common Sense Lessons Covering Completely
a Typical Building and Purchasing Operation

By Howard & Callmann, Inc., Architects and Engineers,
Far Rockaway, N.Y.

IN TWELVE PARTS—PART VI

Payments to Contractor; General Contract Provisions

BUILDING is a cold business proposition involving much money and other valuable considerations; for best results all details should be handled in a strictly business way. Both parties to the building contract should first thoroughly understand and then scrupulously fulfill all their respective obligations.

Method of Payment on Contracts

(111) The plans and specifications will show and call for the character of the work each contractor has to supply for the building and each contract will state what part of the work has to be carried out before

Installment Payments on Contract as Work Progresses—
Some Terms Defined—General Conditions—Bond and Insurance

the owner for payment.
(112) The carpenter and mason contract should

be drawn up for the general run of work as follows:
Contract for Carpenter and Mason work.....\$4,849.00

First payment:—When foundation walls, cellar and piazza piers are built, frame raised, sheathed, chimneys run through roof, and roof shingled.....\$1,019.00

(This is called "Rough Enclosure.")

Second payment:—When all interior partitions are set, rough floors laid, sash in and brown mortar on.....1,019.00

Third payment:—When the white mortar is on, the standing trim up, and the outside work 80 per cent. completed.....1,019.00

Fourth payment:—When all the work called for by the plans and specifications is entirely completed to the satisfaction of the Architect1,019.00

Fifth payment:—Thirty days after the fourth payment was due.....773.00

\$4,849.00

(113) *Comment on First Payment.* The first payment calls for the cellar and piazza piers to be built; this is specially mentioned to prevent the girders which support the first tier of beams and the piazza work, being temporarily supported by shoring, which is undesirable. The chimneys are to be run through the roof and flashed as the roof shingles are laid, which should insure a tight roof. If a builder knows



payment is made. As each contractor carries out his work satisfactorily from stage to stage, the architect issues a certificate which states that a payment is due according to the contract, and this the contractor presents to

he has to do the work in this order before he can get a payment, it is an assurance that it will be so done.

(114) *Comment on Second Payment.* Less than half the amount of the carpenter and mason contract should be made payable when the brown mortar is on the building, as the owner has only the building as security.

(115) The sash is specially mentioned in this payment in order to protect the plaster work against rain or frost; but if the plastering is done during hot weather, then it is best to change this and call for temporary muslin screens instead. The muslin of the screens should be dampened during the time the white mortar is being spread and drying out; otherwise it will dry too fast and crack.

(116) *Comment on Third Payment.* The brown mortar should be thoroughly dry before the white plaster is put on. The standing trim means the door and window casings.

Description of Various Timbers

(117) *Wood Sill.* A timber laid on top of foundation walls as a base for the wood frame.

(118) *Girder.* A heavy timber on which one end of the first floor beam rests.

(119) *Floor Beam.* The horizontal supports under the flooring (called joists).

(120) *Corner Post.* A timber 4 by 6 inches set vertical at the angles of the building to stiffen the frame. Where possible it is run in one length from sill to eaves plate.

(121) *A Stud.* A 2 by 4 or 3 by 4-inch timber, set vertically to form outside walls and inside partitions. The size of stud commonly used is 2 by 4 inches.

(122) *A Plate.* A plate is a 4 by 4-inch timber set horizontally on top of a number of vertical studs; the floor beams and studs of the second story rest upon it.

(123) *Roof Rafter Plate.* Technically called "Eaves Plate." It is the highest horizontal plate in the building and rests on the studs forming the walls of the second story. The ends of the roof rafters also sit on the eaves plate.

(124) *Roof Rafters.* Timbers set on an incline from eaves plate to roof ridge to which the shingle lath is nailed.

(125) *Ridge Piece.* A timber set horizontally at the highest point of the roof. The upper ends of the roof rafters butt against it on both sides, all are securely nailed together.

(126) *Braces.* Braces on the outside walls are set diagonally in a continuous line between a number of studs to stiffen the frame. They start from the sill on the first floor and the plates on the upper floors.

(127) Braces for inside partitions are cut in horizontal between the studs half way between the floor and ceiling beams.

(128) *Sheathing.* Boards $\frac{3}{8}$ inch thick of various widths nailed to the studs to cover the outside of the

building.

(129) *Shingle Lath.* 1 by 2-inch wood strips, nailed horizontally to the roof rafters, to which the shingles are nailed.

A Typical Specification

THE following specification for mason and carpenter work is drawn up for the erection of a cottage building and is based on the floor plans accompanying Part III. The notes in *italics* are not part of the specification, but are in explanation.

General Conditions

(130) *Invitation to Estimate.* An invitation to estimate is given on the understanding that there will be no obligation pecuniary or otherwise incurred by the Architect or Owner.

An owner has a legitimate right to choose a Contractor who is not the lowest Estimator, provided the contract is made for the amount of the estimate submitted. It is not honorable to ask a higher Estimator to reduce his figure to that of a lower Estimator.

(131) *Interpretation of Drawings and Specifications.* The drawings and specifications are intended to explain and elucidate each other, and shall be equally binding upon the Contractor. It must be understood that they call for a "complete job." The Contractor shall supply and set all the materials called for in the specifications and implied by the $\frac{1}{4}$ inch scale drawings. Should the drawings and specifications conflict as to any part of the work, the Contractor shall ask for an explanation in writing from the Architect before submitting his estimate; if he fails to do this, the Architect shall decide what was intended.

The expression "complete job" is necessary, as it is impossible to specify every nail or each individual part of the work.

(132) *Dimensions on Plans.* Figured dimensions on the drawings take precedence over measurements by scale. The Contractor shall check all measurements on the drawings before laying out the work.

This is a check on clerical errors.

(133) *Quality of Workmanship and Material.* All work and materials shall be judged according to the local standard for good work.

It is advisable where possible, to select a finished building similar to what is desired and make this the standard.

(134) *Builders' Supervision.* The Contractor, or a competent representative, shall supervise the work and shall meet the Architect at the site whenever notified. An experienced foreman shall superintend the work and remain constantly on the premises during working hours.

"Supervision" is competent and proper inspection, to ascertain if the work is being carried out according to the drawings and specifications. "Superintendence" is continuous personal attendance at the building.

(135) *Condemned Work.* The Contractor shall remove from the building or premises any material con-

A Typical Specification Explained

demned by the Architect, and shall take down any portion of the work which is unsound, not properly constructed, or which fails to conform with the drawings and specifications.

Frequent inspections should be made by the Architect to prevent unsound work being covered up.

(136) *Protection of the Building.* The Contractor shall protect the building during construction, and shall be held responsible until the building is accepted by the Owner.

This is protection against the weather, damage or theft.

(137) *Scaffolding, Carting and Permits.* The Contractor—shall erect the necessary scaffolding—do all carting of materials—obtain and pay for all permits and comply with all laws and ordinances.

(138) *Architect's Directions and Full Size Detail Drawings.* The Contractor shall follow the directions given by the Architect as the work progresses, and shall supply the exterior and interior woodwork, plaster, cement or metal work in accordance with the Architect's full size detail drawings.

(139) *The Cutting for Other Mechanics.* The Contractor shall do the "cutting" for the heating, plumbing and other Contractors working on the building; he shall also "make good" after they have completed their work.

It is customary for the Carpenter to provide cleats for the plumbing and heating pipes, and cut the beams and studs over which pipes are to be set. This is called "the cutting for other mechanics."

"Make good," is cleaning, or pointing plaster, stucco and concrete work or restoring any woodwork that has been damaged by the mechanics at work on the building.

(140) *No Changes are to be Made Without a Written Order From the Owner.* No alteration shall be made in the work shown on the drawings or described in the specifications, without a written order from the Owner. If additional work is required, an estimate shall be submitted, and if reasonable the amount shall be added to the contract price. Payment for additional orders shall be made upon completion of the building.

Orders for additional work should not be given verbally, as it leads to dispute.

(141) *Arbitration as to Extra Work.* In case an estimate for additional work should be considered exorbitant by the Architect, each party to the contract shall appoint an arbitrator and the two chosen shall appoint a third. The parties to the contract shall agree to accept the decision of any two of them. Each party agrees to pay one-half of the expense incurred.

This clause is intended to avoid litigation, if possible.

(142) *Extension of Time.* In case of additional work being ordered it shall not invalidate the time clause, but a reasonable extension of time shall be al-

lowed beyond the date set forth in the contract for completion.

(143) *Inspection of Building.* The Contractor shall provide trade made ladders for the use of the Architect and Owner during construction, and when the white plaster is set a temporary open stairway shall be built from the first to the second floor.

Ladders made on the job with 2" x 4" studs and shingle lath are dangerous.

(144) *Accident Insurance Policy.* The Contractor shall be held responsible for accidents to his men, delivery men, and damage to the adjoining property. He shall take out an accident insurance policy and submit it for inspection to the Architect.

(145) *Indemnity Bond.* The Contractor shall give a Surety Company's bond in the amount of 50% of the contract price; to guarantee the faithful performance of the contract.

(146) *Fire Insurance.* The Owner shall insure the building against loss by fire during the construction of the work.

Buildings in course of construction are insured against fire on a sliding scale. If the completed building is to be insured for \$7,500—when the frame is raised it is insured for \$3,000—when plastered for \$2,000 more—and when trimmed the balance.

(147) *A Three Days' Notice.* Should the Contractor at any time neglect to supply a sufficient force of workmen, or delay the work on the building, the Architect as agent for the Owner will serve a three days' notice upon the Contractor. If he fails to comply with the terms of the notice, the Owner shall be at liberty to take possession and provide the labor or materials necessary to complete the work, and deduct the cost of same from the balance due on the contract.

(148) In case the Contractor is superceded, he shall not be entitled to receive any further payment until the entire work is completed. If the amount due under the contract exceeds the cost incurred by the Owner in completing the work, the excess shall be paid to the Contractor; but if the cost of completion exceeds the unpaid balance, the Surety Company will be liable to the Owner for the deficiency.

(149) *Cleaning at Completion.* Before the Owner accepts the building, all stains on the plaster and glass shall be removed, the windows cleaned and the building left broom clean. *

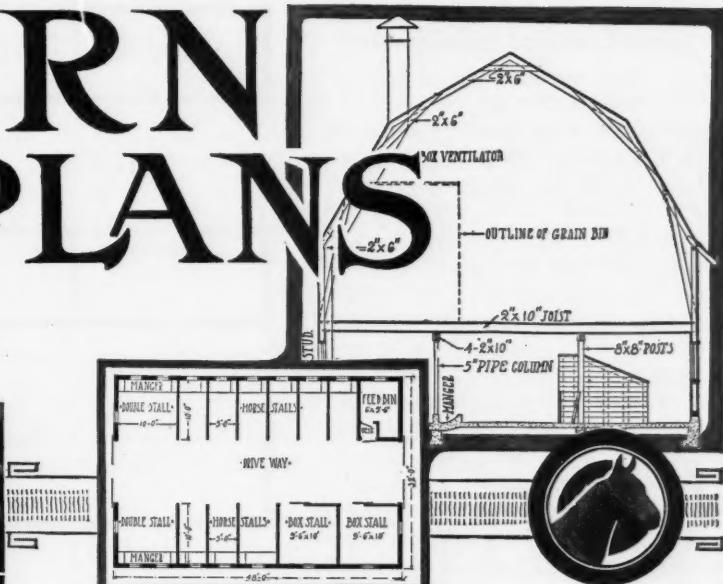
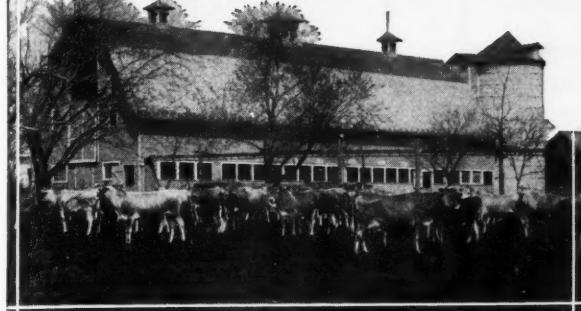
Federal Supervising Architect Resigns

Washington, D. C.—The resignation of Oscar Wenderoth, supervising architect of all buildings erected for the Federal Government, has been tendered to the Treasury Department to take effect May 8th. It is expected that the present technical officer, George O. Van Nerta, will remain in charge as acting supervising architect and that the men under him will be moved up to fill the resulting vacancies.

Mr. Von Nerta entered the service in 1886. He advanced rapidly to the position of technical officer and from this important post he has been elevated to the office of acting supervising architect.

E. G. DOUGHERTY.

MODERN BARN PLANS



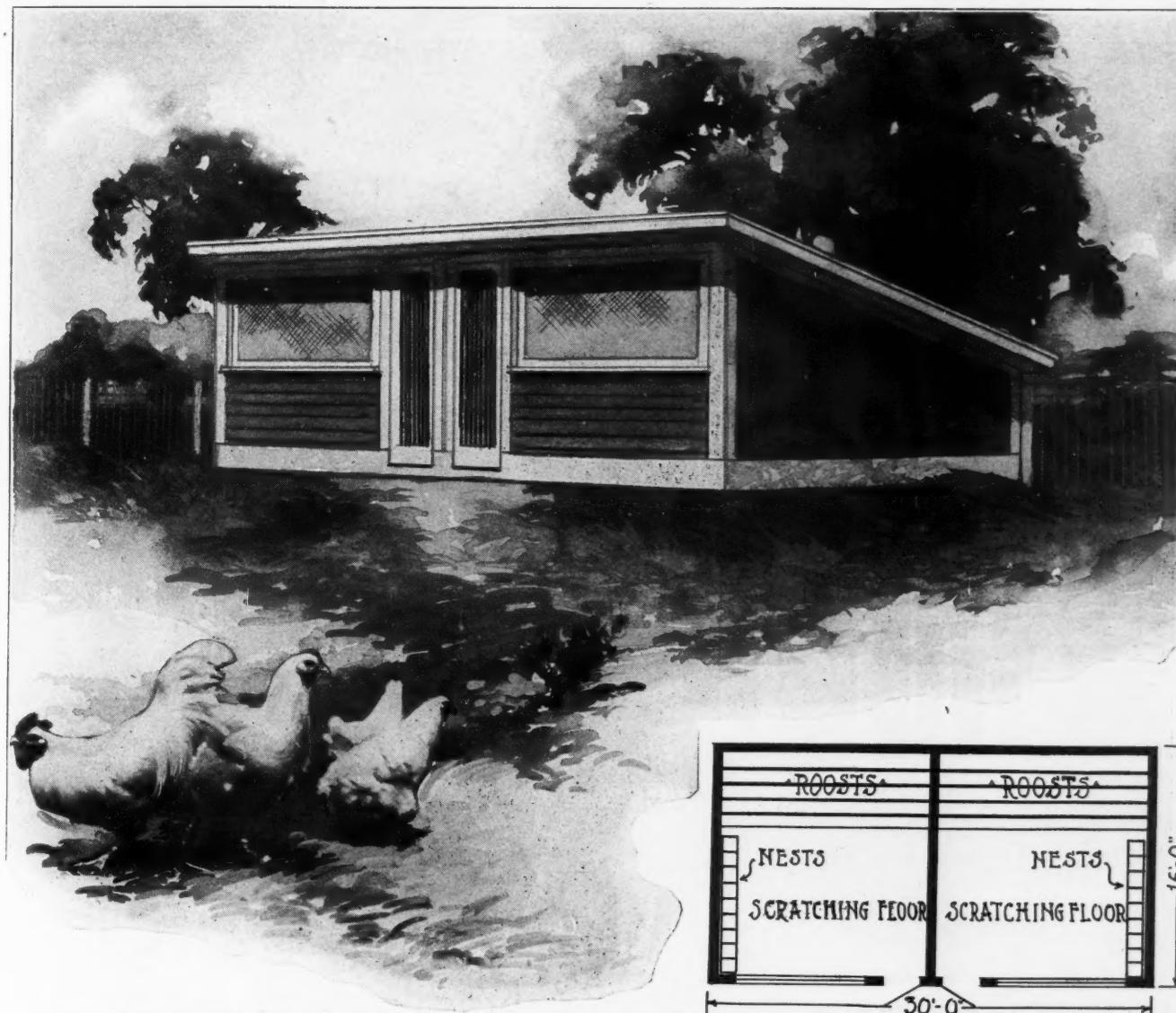
Shed Roof Poultry House

A shed roof poultry house, 30 by 16 feet in size, is shown herewith. This plan has been adopted by a great

many poultrymen in New York state and other sections of the East. The reason is that such a house is more easily ventilated than any other plan

of poultry house, because the depth, 16 feet, is about the right distance to circulate fresh air back from the mus-

(Continued to page 83.)



Double Poultry House, to care for 90 hens in two flocks. Muslin curtain fronts give ideal ventilation and sufficient light. We can furnish complete set of blue-printed working plans and typewritten specifications for only \$3.00 per set. When ordering, ask for Design No. A326.

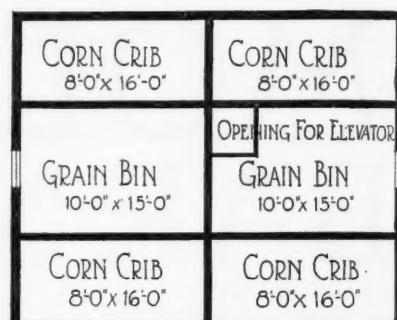
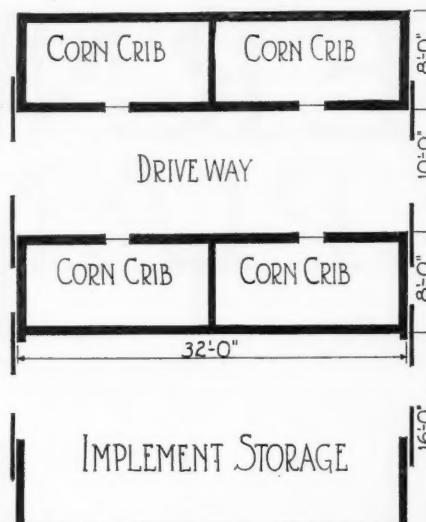
**Combination Grain House,
Corn Crib and Implement
Shed**

One building sometimes is required to answer several purposes on farms devoted to general farming. Such a building is shown in the perspective and plans of Design A315 shown on this page and the next.

The main part of this building, the corn crib and grain house proper, measures 32 x 26 feet. The implement shed built at the side is 16 feet in width made the full length of the main building. Attaching the implement shed to the corn house saves building one side of the implement shed.

The outside studding are 2x6 inches, eighteen feet long, placed 24 inches on centers. The inside studding are 2x8, and reach up and carry a light purlin which supports the roof. Two by eight studding is necessary in the center partitions to carry the load of grain, which may be heaped up clear to the peak.

Modern farm elevators have made such grain houses possible. It is easy



wide and are ventilated by using slats for siding. The corn cribs reach from the floor to the plates and extend up the slope of the roof. The corn cribs as well as the grain bins are filled by a movable spout from the cupola at the center of the peak.

The foundation wall is heavier under the grain house than under the implement shed. The construction of the shed is as light as possible to make it damp-proof and dust-proof to house the farm implements and machinery under

by means of horse power or gas engine power to put the grain to the top of this grain house—in fact, much easier than to shovel the grain into an ordinary barn bin by hand.

The corn crib sections are eight feet



A Very Useful Farm Building Comprising a Two-Story Corn Crib and Granary, size 32 by 26 feet, and a one-story implement shed addition, size 32 by 16 feet. We can furnish complete set of blue-printed working plans and type-written specifications for only \$4.00 per set. When ordering ask for Design A315.

Modern Barn Plans

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favorable conditions to preserve them from unnecessary depreciation. The floor of the implement shed may be made of concrete if desired the same as the floor in the grain house.

The driveway through the grain house is used for different purposes, such as shelling corn, for cleaning grain by putting it through the fanning mill, and it also affords good storage for large wagons to enter at one end and leave at the other end.

There is a free space from one end to the other in the implement shed, before the tools and machinery are put in, but implements and machinery in storage naturally block the passage through the implement shed, so that only one door is available for general use.

The doors are made in half, so that one or both may be opened as required. Special door tracks and hangers are used so that the doors open easily without

unnecessary friction. New inventions for hanging rolling doors are a great improvement on the old ones in this respect. They are made true and they are made iceproof and birdproof. Also the new barn door fasteners are much heavier and better in every way.



Shed Roof Poultry House

(Continued from page 81.)

lin-covered openings.

The droppings boards are placed near the low roof at the back. They fit close against the walls and are supported on cleats but are not made fast. The roosts are placed close up against the roof.

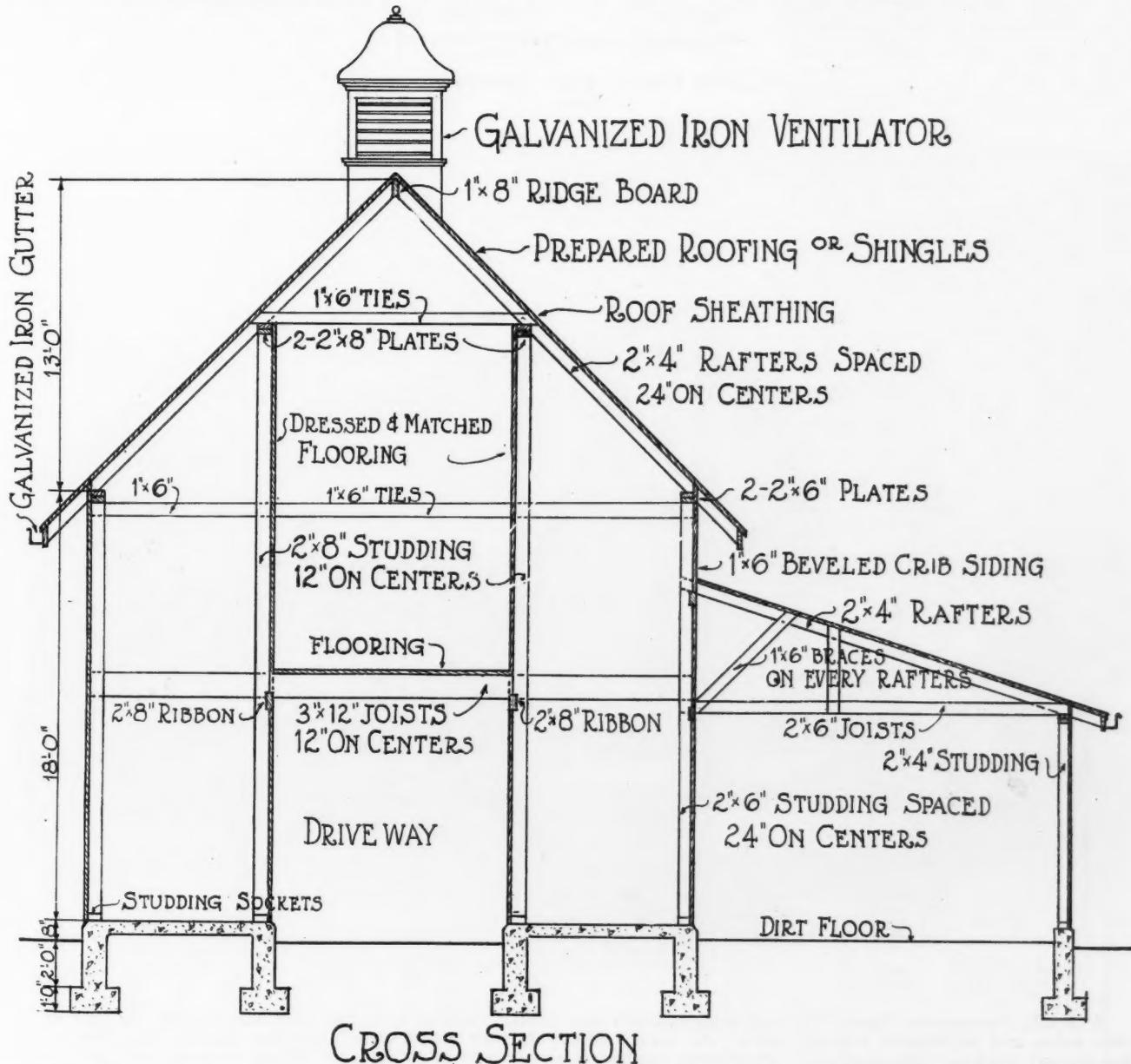
The muslin front openings are high enough to admit light as well as air, so long as the muslin is kept clean the poultry house will be sufficiently well lighted.

The plan shows two separate rooms

for the housing of two flocks of poultry. Practical poultrymen have demonstrated that from 25 to 40 full-grown laying hens are about the limit for one colony. They will lay more eggs than when the house is very crowded, or when it does not contain sufficient fowls to keep the place warm.

This plan divides nicely into two rooms about 15 feet square each. Each room is arranged to give the poultry the full use of every square foot of floor surface.

It is customary to provide from 3 to 5 square feet of floor per fowl. There are about 225 square feet of floor surface in each room which, divided by 5, gives a capacity of 45 fowls, showing that the house is amply large for two flocks of poultry kept under sanitary rules, as laid down by good practice.



CROSS SECTION THROUGH COMBINED CORN CRIB, GRAIN HOUSE AND IMPLEMENT STORAGE SHED
(DESIGN A315) ILLUSTRATED ON OPPOSITE PAGE.

Small Convenient Farm Barn

A combination barn, 36 by 46 feet, built on the lines shown in the perspective and floor plan herewith, is a very convenient barn for the smaller farms. Also as an auxiliary barn on a large farm it is proving very popular.

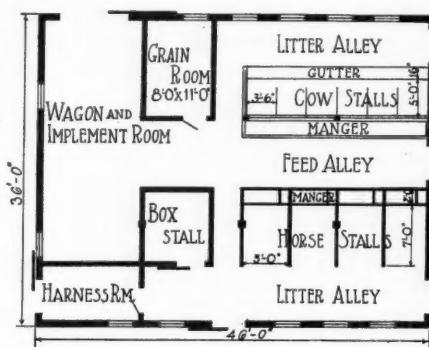
The foundation is thoroughly well done of concrete by putting the foundation walls down below frost. The floor is of concrete, the full size of the barn, and is level and finished smooth with the exception of the cow stable part. The cow stable floor includes the manger and gutter, which are all built together of concrete in the best approved manner.

The floor plan shows stabling for six cows in one corner of the barn, while the opposite side is given over to the horses. There is stabling for four horses, besides the box stall, which is intended for the stabling at times of any animal requiring individual attention.

There also is a small grain room

and a space for wagons or implements with a convenient doorway 10 feet wide.

Overhead is considerable storage for hay or other kinds of fodder. The mow is nearly 30 feet in height, measuring from the hay-mow floor, and this space is free from posts or crosswise timbers. Such a mow affords storage room that is appreciated at haying time on any well conducted farm.



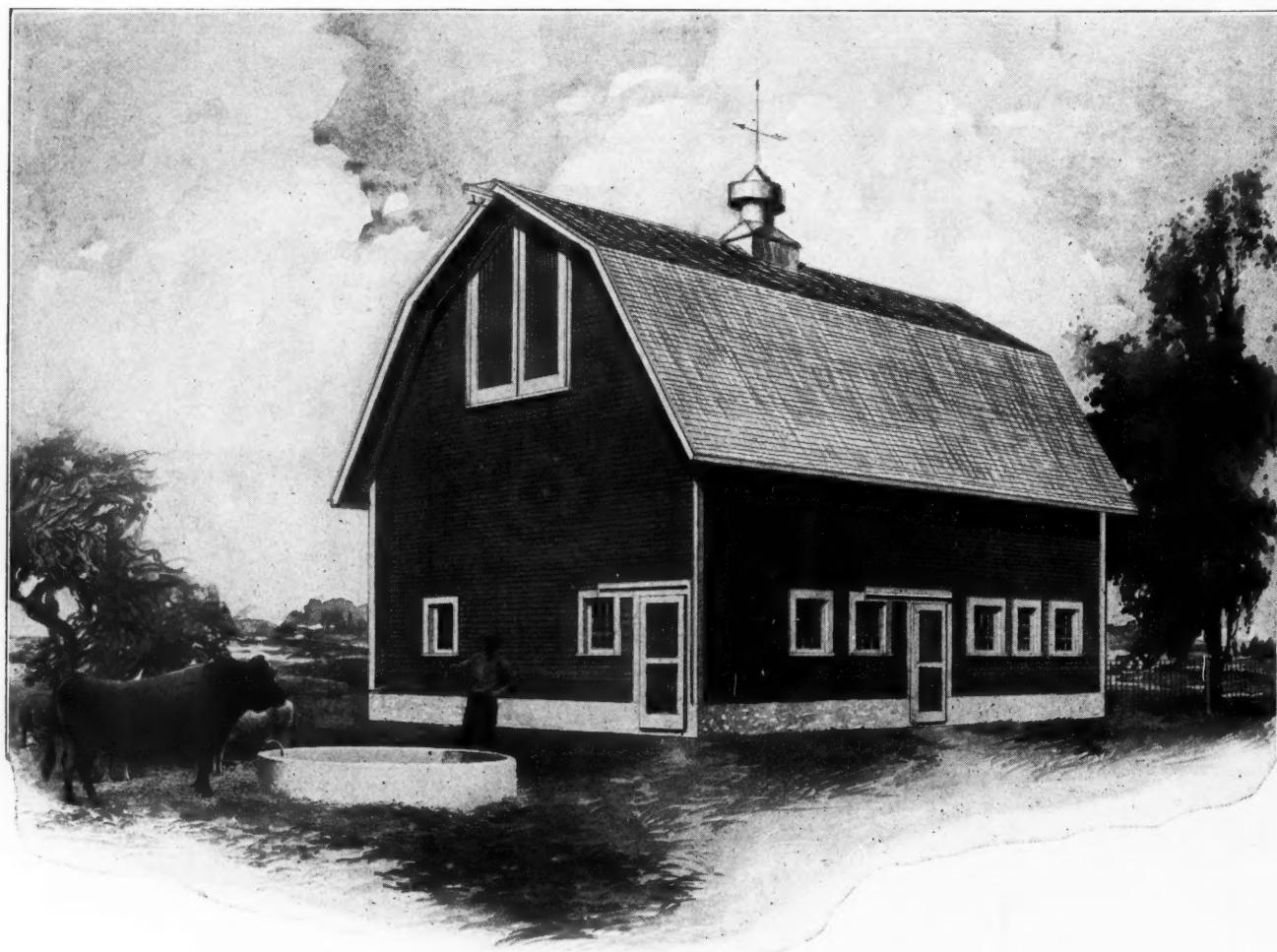
Main Floor of Small Combination Barn.

This fine mow may be filled easily and quickly by means of a horse fork, which operates from the projection at the front end of the barn.

The hay carrier track is suspended from the short collar beams close up into the peak. The car is one of the new varieties that work so easily and freely that the old time horse fork troubles are forgotten. The car rolls out on the track projection, so the fork drops lightly onto the center of the load and the big forkfuls are lifted easily and quickly and noiselessly. The large upper doors are 12 feet in width and 16 feet in height, a size large enough to give free access to a large forkful of hay without knocking against the sides.

Also the door sill reaches down to admit forkfuls of hay with a lower hoist until the mow is well filled.

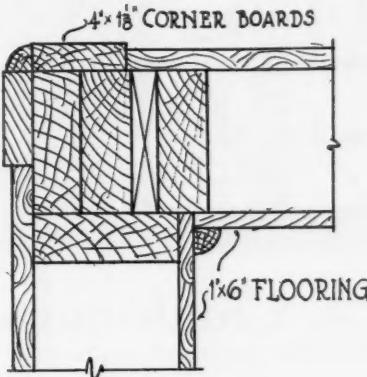
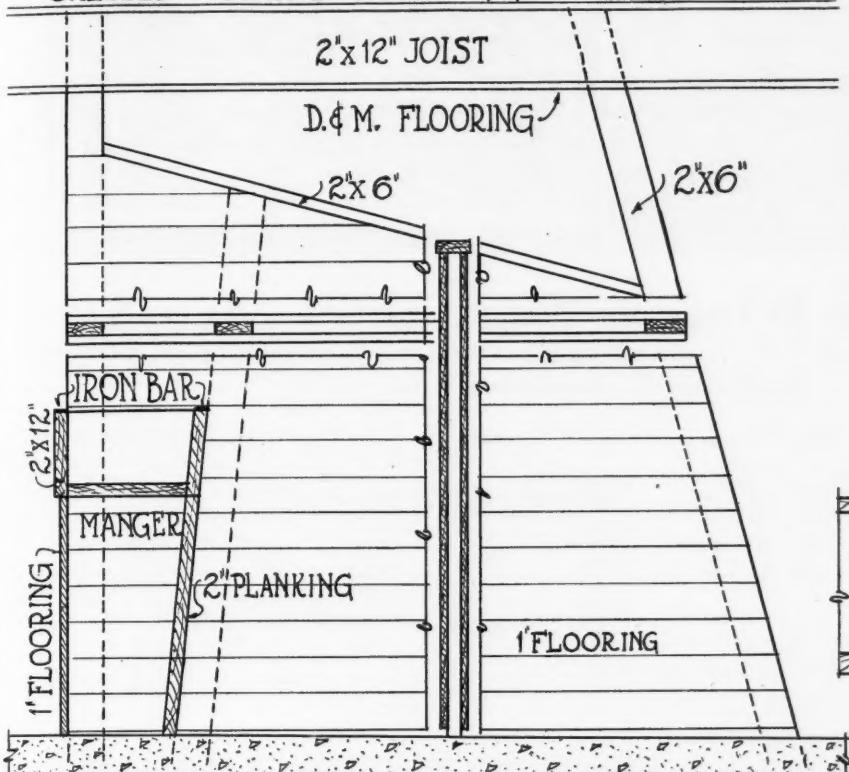
The round watering tank is made at the same time the foundation walls and stable floor are made, so the whole job is finished while the mixing tools are on the ground.



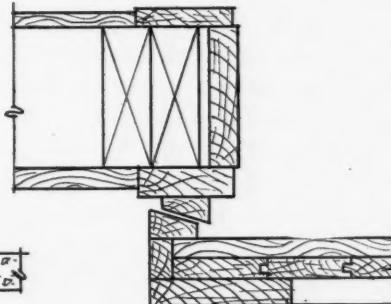
A Small, Inexpensive Barn, but well designed and well built. Ground floor has four horse stalls, six cow stalls, grain room and implement storage space. An ideal building for the small farm. We can furnish complete set of blue-printed working drawings and typewritten specifications for only \$6.00 per set. When ordering, ask for Design No. A294.

For Details of this Barn See Opposite Page

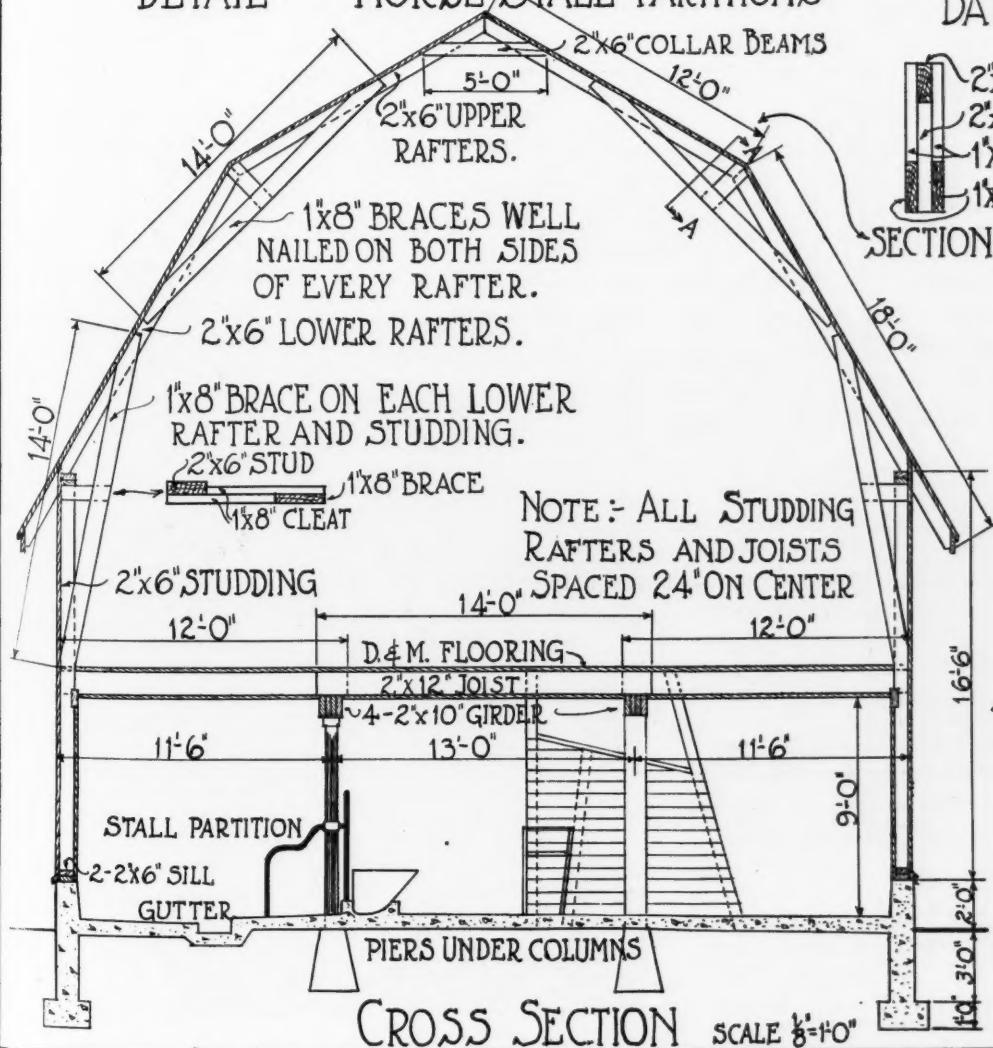
DRESSED & MATCHED FLOORING



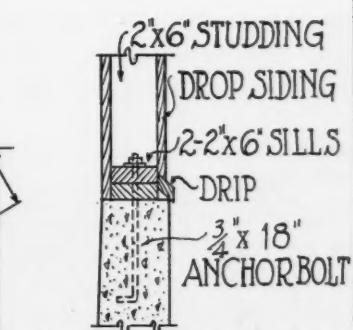
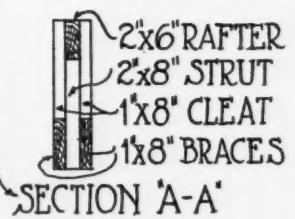
CORNER POST DETAILS



DETAIL OF HORSE STALL PARTITIONS



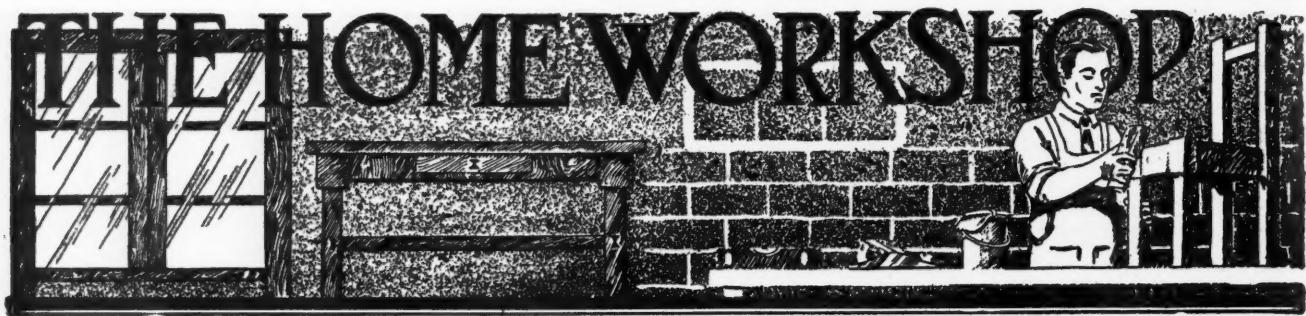
BARN DOOR DETAILS



SECTION AT SILL
SCALE $\frac{1}{2} = 1'0"$
SHEET OF
BARN DETAILS

CROSS SECTION

SCALE $\frac{1}{8} = 1'0"$



A Combination Window Seat and Catch-All

CLEAR AND COMPLETE DIRECTIONS FOR MAKING AND FINISHING THIS INTERESTING PIECE OF HANDICRAFT
By Ralph C. Davison

THE accompanying illustrations show a combination window seat and catch-all. This is a particularly useful piece of furniture where space is limited, inasmuch as there is no lost space, since the lower portion is put to good use by means of the two commodious drawers.

The piece is of splendid proportions, is easy and inexpensive to make and when complete presents a handsome as well as a substantial appearance. It can be made of either oak or mahogany, or of any of the cheaper woods that take a good stain.

If made as shown in the accompanying details, it will stand hard usage and any amount of strain. It

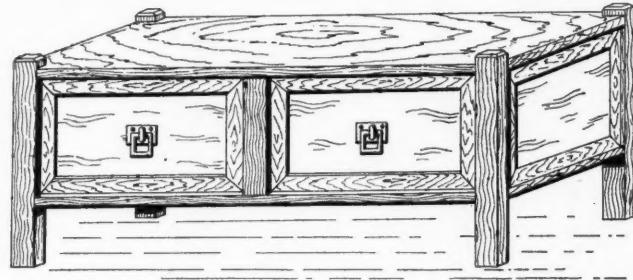


Fig. 1.

would be well to use screws and glue throughout.

It will be noticed that the side and end panels are screwed to the half-inch nailing strips, and that the screw heads are hidden by means of the 1 by $\frac{1}{8}$ -inch flat moulding which is attached to the panels by means of small brads and glue.

The detail of the corner posts shows the method which is used for placing the top board and bottom draw frame. The posts are cut half way through, on

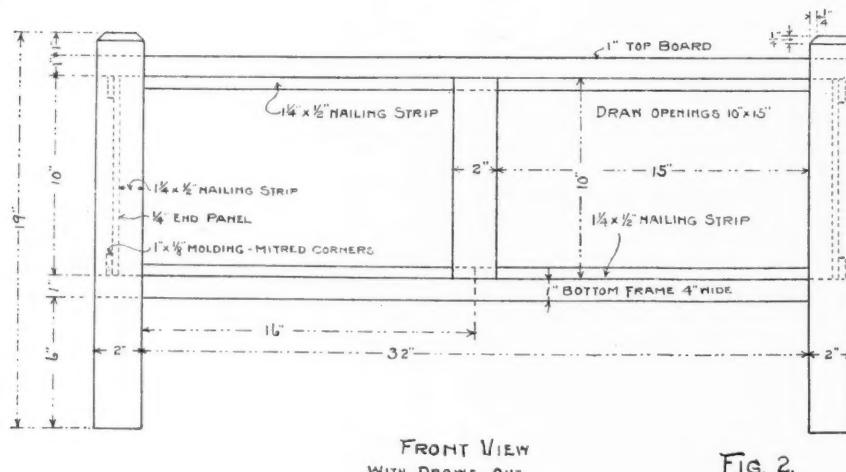
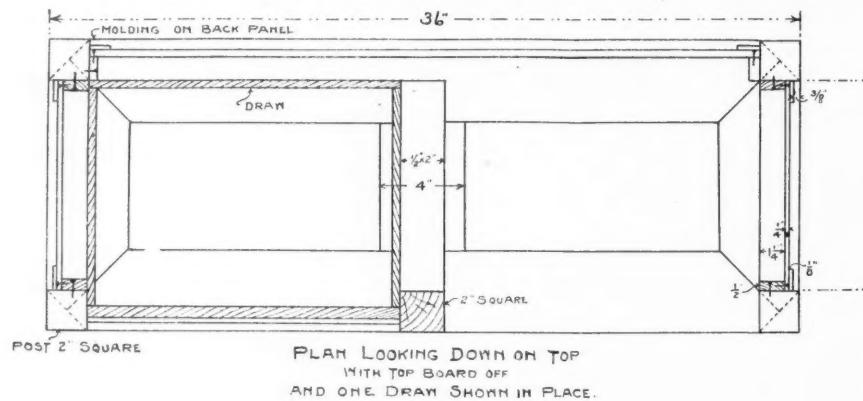
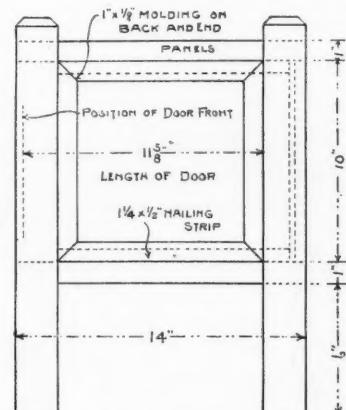


FIG. 2.

DETAIL OF COMBINATION
WINDOW SEAT AND CATCH-ALL.



Window Seat and Catch All

87

the diagonal, and are notched out to receive the corners of these members.

The box when complete and well rubbed down with fine sandpaper, may be stained and filled and finished with a wax finish.

A pair of good substantial drawer pulls of mission design will then complete the finishing touches.

The material necessary is as follows:

BILL OF MATERIAL FOR WINDOW SEAT.

- 1 piece 36 by 14 by 1 in., for top.
- 2 pieces 36 by 4 by 1 in., for bottom frame.
- 2 pieces 14 by 4 by 1 in., for bottom frame.
- 4 pieces 2 by 2 by 19 inches, for corner posts.
- 1 piece 2 by 2 by 10 in., for center post.
- 1 piece 32 by 10 by $\frac{1}{4}$ in., for back panel.
- 2 pieces 10 by 10 by $\frac{1}{4}$ in., for end panels.
- 8 pieces 10 by 1 by $\frac{1}{8}$ in., for molding for ends.
- 2 pieces 32 by 1 by $\frac{1}{8}$ in., for molding for back.
- 2 pieces 10 by 1 by $\frac{1}{8}$ in., for molding for back.
- 4 pieces 15 by 1 by $\frac{1}{8}$ in., for molding for doors.
- 4 pieces 10 by 1 by $\frac{1}{8}$ in., for molding for doors.
- 2 pieces 15 by 10 by $\frac{1}{2}$ in., for draw fronts.
- 4 pieces 11 by 10 by $\frac{3}{8}$ in., for draw sides.
- 2 pieces $14\frac{1}{4}$ by $9\frac{5}{8}$ by $\frac{3}{8}$ in., for draw ends.
- 2 pieces $14\frac{1}{4}$ by 11 by $\frac{3}{8}$ in., for draw bottoms.
- 4 pieces $8\frac{1}{2}$ by $1\frac{1}{4}$ by $\frac{1}{2}$ for nailing strips for top and bottom frame.
- 2 pieces $30\frac{1}{2}$ by $1\frac{1}{4}$ by $\frac{1}{2}$ in., for nailing strips for top and bottom frame.
- 8 pieces 10 by $1\frac{1}{4}$ by $\frac{1}{2}$ in., for nailing strips for posts.
- 2 draw pulls, screws, brads and glue.

—Plainfield, N. J.

“Bungalow” Used as Sign

By Albert Marple

A real novelty in the way of an advertising sign is what has been termed in Los Angeles, California, "The Bungalow Sign." It has been so named on account

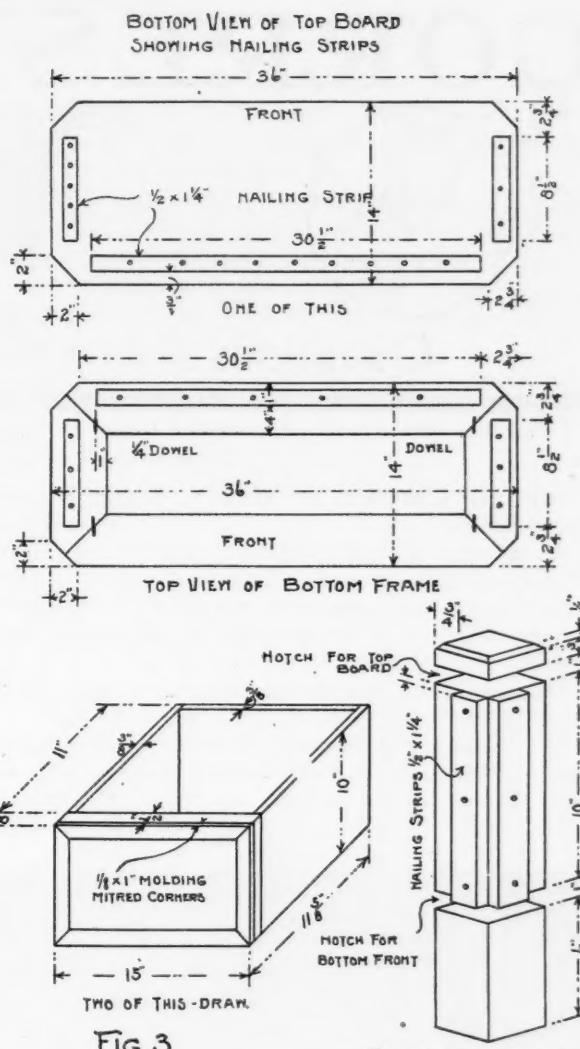


FIG. 3

DETAIL OF COMBINATION
WINDOW SEAT AND CATCH-ALL

of a portion of it resembling very much a modern bungalow. The entire sign is about five feet in height. It consists of this little bungalow located upon a pair of frame braces, on either side of which is a large blackboard, where the facts concerning the tract are written.

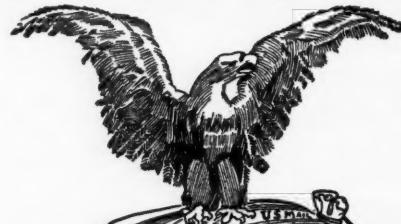
This little bungalow is three feet in width, two feet in height and about twelve inches in thickness. The sides and roof have been shingled, while the entire affair has been painted gray. The eaves have an extension over the sides of the bungalow for a distance of about six inches. This little bungalow is made more realistic by the modern-shaped chimney close to the right side.

As an advertising device this queer little sign very efficiently serves the purpose for which it was intended—that of advertising the tract and designating the location of the tract office.

No Freckles on Her

HE: "Have you read 'Freckles?'"
She (quickly): "Oh, no! That's my veil!"—*O. S. U. Sun Dial*

CORRESPONDENCE



Questions Answered and Ideas Exchanged.

Our Readers Are Requested and Urged to Make Free Use of These Columns for the Discussion of All Questions of Interest to Carpenters and Builders.

Chicago Carpenter Makes Stage Cannon

To the Editor:

Chicago, Ill.

We have just finished a wooden cannon in perfect imitation of a modern 5½-inch gun. It is for stage use, and has attracted a lot of attention in our shop, as we have been working on it. It is 18 feet long, yet weighs less than 100 pounds.

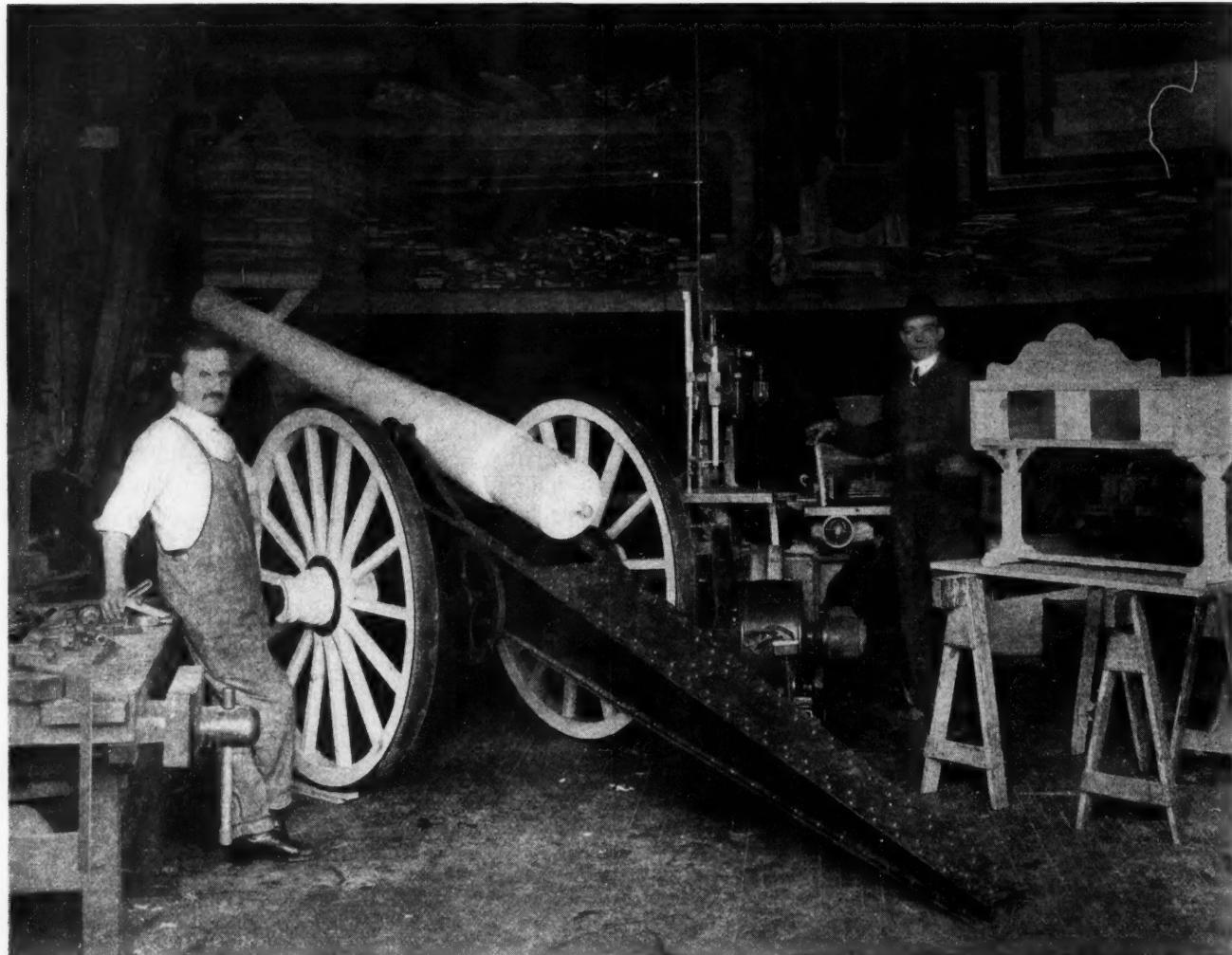
This cannon has been made mostly during spare time, representing about 175 hours. I sold it for \$100.

The barrel of the cannon is built up of 18 white wood staves, glued together. White wood and spruce are the woods used for the cannon, wheels, and trail. The axle is of birch, and the rivets are oak. No metal whatever was used

anywhere in the construction of this terrible looking weapon.

I have a shop 20 by 46 feet, equipped with a Sidney combination woodworker, which I first saw advertised in the AMERICAN CARPENTER AND BUILDER. This is a tool that can't be beat for a shop like mine. I give your magazine and the suggestions contained in it all credit for the success I have had in my shop. It is only five years I have been here, but in that time I have experienced a personal story which I could tell you if there was time, longer than Halsted Street, and just as interesting. Most of my work now is store fronts, partitions, shelving and special millwork, alterations, etc.

JOHN ZVANUT, Proprietor,
Down Town Carpenter Shop.



Interior View of "Down-Town Carpenter Shop," Chicago, Showing All-Wood Stage Cannon Made at Odd Times by John Zvanut.

Novel House Moving Stunt—Sawed in Two and Moved in Two Parts

To the Editor:

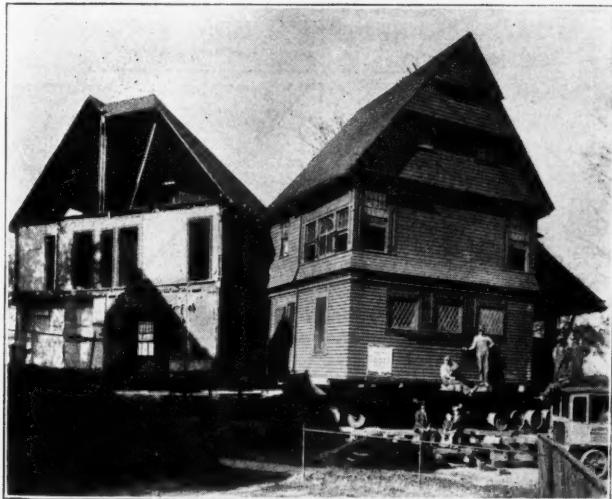
Minneapolis, Minn.

I notice in several issues of your paper jobs and feats of house moving by some of your readers; so I am sending you two photos of a recent job I handled.

This house was almost new—original cost \$5,280.00. The owner decided to put up a large flat building, but hated to



Note How the Roof Had to be Supported with Timbers.



This Shows Method Connecting the Two Sections to Move them on the Steel Trucks.

wreck the house on account of the utter loss. So he offered it for sale and got a nice price for the house.

It was necessary to cut it in two to get it through the narrow street which faced the lot.

Both sections were pulled at the same time by attaching them together after being loaded on three points on steel moving trucks.

The building was moved $2\frac{1}{2}$ miles without a rack or twist. After placing on foundation I pulled the sections together by means of bolts passing between joist and also studding. By this means the two sections were pulled together tightly and you could not tell the house had ever been moved.

This job saved the former owner money and the new owner secured a nice house at one-third the cost of building a new one. Besides, it furnished my carpenters labor in cutting, making and joining, also work on alterations.

HENRY DOEPKE.

Four Good Questions

To the Editor:

Doniphan, Neb.

I would like to be informed through the columns of your valuable paper and by the brother readers on the following:

No. 1. Would like a practical method of putting on 4-inch lap siding on a circular wall.

No. 2. Would like to know what is the best method of putting in place the top and last tread in a housed stair. This seems a little difficult as the joist are from 8 to 12 inches wide, and the riser must be put in first.

No. 3. Why is the letter "V" used in place of "U" in stone lettering, as in "PVBLIC?"

No. 4. How can electric lights be used successfully in making blue-prints?

DONIPHAN LUMBER CO.



Squeaky Floors

To the Editor:

Chicago, Ill.

I would like to ask a question of some of the Brothers to see what their experience has been in taking the squeak out of a floor. We have a sub-floor covered with maple top floor which squeaks badly in places. The building is heated with hot air furnace heat.

If any of the Brothers can tell me of a method which they have used in similar instances which has produced good results I know that it would be of interest to many of us who are doing work of this kind.

C. P. EDWARDS.



Setting Partitions in England

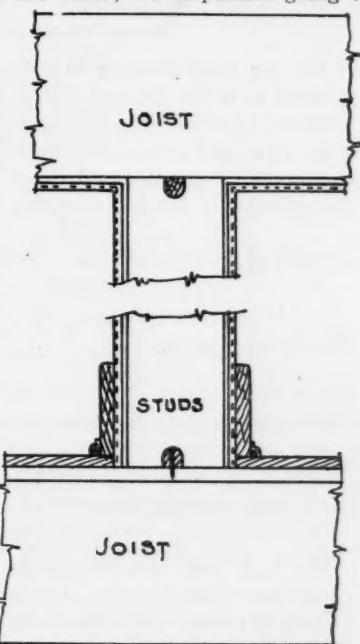
To the Editor:

Dennison, Ohio.

I hear and read so much about "Toe Nailing" in building houses, which may be all right in some jobs; but when I was an apprentice, it was my job to cut joist and studding to proper lengths, then place them so the men could lay the floors. While the others were laying floors, I was ordered to cut a slot in both ends of the studding by boring a 1-inch hole in center close to end, and cut shell out with mallet and chisel. Then nail a $\frac{3}{8}$ -inch strip on floor to chalk line and set studding in place, both ends straddling strips on floor and ceiling joist; then the men placed the door jambs or frames in position, after which the lathers would move the studding to suit, either one way or the other; we carpenters going to shop until plastering was good and dry.

I do not do much building now,—in fact, I have never nailed siding on a house, although I have been working in wood for 36 years, because in England we do not have wooden houses. When coming to America, I thought, and do yet think, it foolish to build a house that will burn down, when it is possible to build of less inflammable material; but I have taken down partitions which tear the floor up before getting the studding down, all on account of toe nailing.

JOHN HENDERSON.



Partition Studs are not Toe-Nailed but Straddle Cleat.

Asks Mr. Pierce to Analyze His Shingling Motions in Detail

To the Editor:

Attleboro, Mass.

We were much interested in your Mr. Pierce's article on "Fast Shingling" and remember some articles in your magazine a few years ago on the subject.

Years of experience has taught us that it is hardly safe to say a thing can't be done, but if anyone had asked us if a man could open and lay a thousand shingles in 48 minutes, we would certainly have said he could not, and for this reason: A thousand shingles here in the East means that four bunches would average 1000 pieces 4 inches wide. This would mean that in laying a thousand shingles a man would use 2000 nails using 2 nails to a shingle. Now, he has got to strike each nail 2 blows, which would be 4000 blows. Now, as he has to open the bunches, place the shingles, move his seat at least sixteen times, we do not see how he could average more than 1 blow per second. At that rate, it would take him 66 $\frac{2}{3}$ minutes, and that would be going some.

Now, we do not mean to say that Mr. Pierce did not lay the shingles in 48 minutes, as he evidently has proof that he did, but we would be very much pleased to have him analyze his motions in laying the shingles, so we could get a better insight into how the thing was accomplished.

GRANT BROTHERS,
General Contractors and Builders.



Thinks Five or Six Thousand a Better Average

To the Editor:

Sterling, Ill.

No, I can't beat it, and I don't believe anyone can lay ten thousand shingles in ten hours. Just think, drive 16 nails a minute besides placing shingles in position! Mr. Pierce could, in a burst of speed, under favorable conditions (if the shingles were wide) lay a bunch in 15 minutes. What does he do on an average, and how is he on other work?

I have been at the trade for twenty years and have seen men hustle and sweat shingling, but it never entered their "noodles" to hustle when doing other work. I am a contractor and would sooner have an all around man rather than a specialist at a certain kind of work.

I am considered a fast shingler, but five thousand is my limit on straight work. Shingling is different here, however. We shingle a good many old houses. Then, of course, hips and valleys have a good deal to do with it. Our shingles, too, are narrow, about 5 inches in width on an average. I think if Mr. Pierce nails the shingles properly about five or six thousand is his average for ten hours.

Also, does he and his helper always carry from three to five bundles up the ladder?

SAMUEL MORRIS.



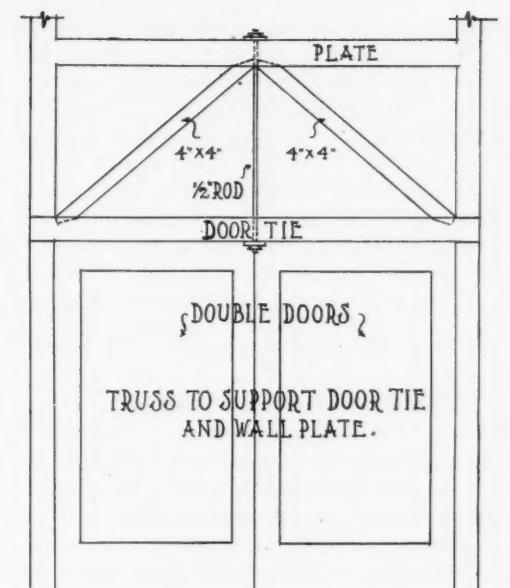
Building Barn Doors

To the Editor:

Yorkshire, Ohio.

I have been reading your valuable magazine for several years, and find in it some very good articles about building construction, but have never noticed anything written about the proper way of making barn doors. I would be pleased to write an article on the subject of "Barn Doors."

There is hardly any part of a barn or out-building used any more than the doors, and if these are made right and are in good order, they are a pleasure to the owner. But if they are not made as they should be, they will provoke the owner every time he opens and closes a door, and are a poor advertisement for the builder. It seems that a good many doors are made with the sole object of getting the opening closed. A man should use as much ingenuity in making doors as he would in any other part of the building.



Method of Trussing Above Wide Barn Doors.

In the first place, do not expect a door to stay in shape and working order on a building with a poor foundation, as the building will settle and draw the track and door out of shape. Therefore, a good foundation.

Next is to figure the framework above the doors so as to have it strong enough and not sag down after the doors are hung. If the driveway is not over 12 feet wide I make only one single door, which, when hung on the track, will bring the hangers near the end of the door tie and not put any weight on the center of the tie, as that is the weakest place in the building if it is not properly supported. If the driveway is too wide for a single door, or if the doors have to slide each way on account of room for track, then I frame in a truss to support the center of the tie, in the upper side of door I cut in notches and in these notches fit two pieces, 4 by 4 inches, and frame the upper end the same as a pair of rafters with a supporting rod in the center to carry the door tie. The truss also keeps the roof plate from sagging.

Next is to calculate the weight of the doors. As they should be made as light in weight as possible, I always use white pine nailed to 1 $\frac{1}{8}$ by 10 hardwood battens. A light



SECTION THRU BARN DOOR SHOWING SPACES FOR EXPANSION.

Right and Wrong Way to Build Barn Door.

door is easier on the track and also on the person using the door. I have seen barn doors made of hard, heavy wood and hung on a thin, weak track, and every time the doors were to be opened or closed it took a family of about five or six persons to handle them. I do not use a cheap open track —nothing but a good, stiff closed track with water table combined, such as several firms are advertising in this magazine.

Next, it is wise to allow for expansion and contraction in making doors of any size at all, to keep the batten from bending during wet weather. When using matched lumber, it is well to have a space about $\frac{1}{8}$ inch between boards, and

if the lumber is well seasoned, it will still make a tight job and allow for expansion in wet weather. When using stock lumber it is well to keep boards $\frac{1}{4}$ inch apart and use metal batten strips which are made to expand and contract. If a door is made that way, it will work under all weather conditions.

I hope this article and drawing will be of benefit to some one just starting out in the business. If any of the Brother carpenters have a better way of making barn doors I would be pleased to see same in the AMERICAN CARPENTER AND BUILDER.

ALVIN L. OEHRTMAN,
Contractor and Builder.

Wall Board Paneling

To the Editor:

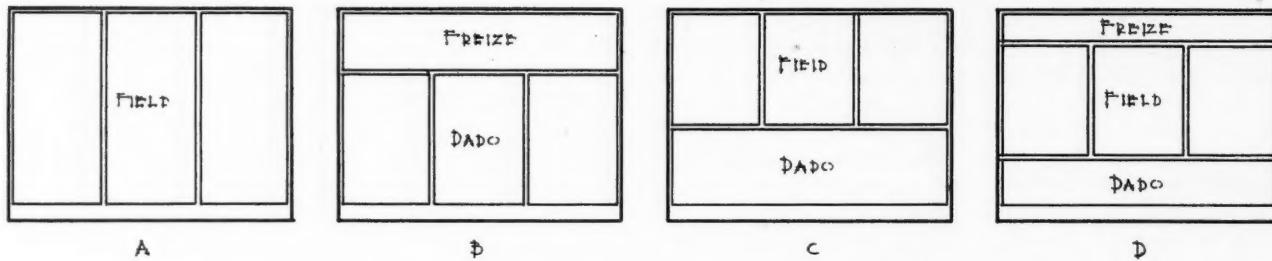
Buffalo, N. Y.

Every up-to-the-minute carpenter and builder knows what wall board is. The extensive advertising it is receiving by the numerous manufacturers indicates that a tremendous quantity is being consumed, otherwise, that expense would not be justified. The carpenter and builder usually put it up.

Now, wall board will make a very desirable finish for any room if a little forethought is paid to the paneling and the decoration. Of the two, paneling is undoubtedly the more important, for it would take a mighty clever decorator to make a poorly paneled room attractive.

The architect rarely furnishes plans for paneling the rooms he planned. This is strange but nevertheless true; so it is up to the builder and sometimes the carpenter to arrange the panels properly to bring about a harmonious treatment. Naturally he wants to make a good job of it, for there is his reputation to be upheld.

Primarily speaking there are only four different designs. These are shown in the illustration which also gives the



ELEMENTAL PANEL DESIGNS

The Four Primary Panel Arrangements—All Others Are Elaborations From These.

correct designations of the various wall divisions. All other designs are merely elaborations.

Before any planning is done, it should be determined what panel sizes are available. Most manufacturers get out panels in widths of 32, 36 and 48 inches, and in lengths ranging from 4 to 16 feet. The 32's and the 48's are for 16-inch on center studs while the 36's are for those 18 inches on centers.

Then, the panel designs mentioned must be adapted to each of the different rooms under consideration. In doing this, it is important to choose one particularly suitable to each of them. For instance, it will be readily seen that design "B" is more appropriate for a dining-room than design "A."

It must also be borne in mind that a frieze will apparently reduce the height of a ceiling, while slender and vertical panels have a tendency to effect a reversed illusion. Ordinarily, in little rooms small panels are utilized and large ones in big rooms.

Furthermore, care should be exercised in fitting the panels into the wall spaces so as to produce a symmetrical effect. The thing to be careful about here, is to use as many panels of one width as possible. It would not be well and, in fact, it would be inconsistent to put a row of narrow panels on

one wall of a room and wide ones on the others.

As to the ceiling, this is not very difficult to lay out, due to its nearly always unbroken surface which offers no obstruction to an agreeable panel arrangement. If possible, this arrangement should harmonize closely with the wall treatment.

Another point: always use wide battens to cover the joints formed by the panels. The wall board people call them decorative strips. It is wonderful to note the difference wide strips will make in a room. They give a certain stately and substantial effect that is totally lacking where narrow strips have been made use of. While those of a plain character are always desirable, elaborate ones are attractive and in many cases preferable.

Remember, too, some of the better known wall board concerns maintain a special department for the purpose of making panel designs for the rooms of those interested. This service will cost nothing. All that is necessary is to supply plans of the work contemplated. "THE WALL BOARD MAN."

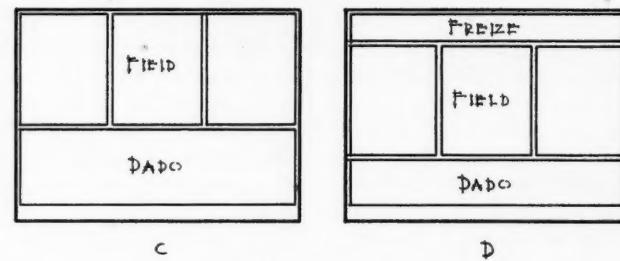
Leveling Old Painted Floor

To the Editor:

Boise, Idaho.

I recently had to lay thin, narrow hardwood flooring over an old floor (4-inch fir) which was badly cupped and painted with four or five coats of floor paint which was very old and hard. As I had to lay the new floor parallel to the old in part of the house, I anticipated much hard work leveling it.

I got a big horse-shoers' rasp and had the shark bent up at right angles. On this I drove a hickory handle. I drilled a hole in the other end of the rasp, bolting on another handle. I then attempted to rasp the bumps off, but wasn't very successful, as the rasp would slip over the hard paint almost like a skate over smooth ice. Next morning I brought along



my torch which has a good hot breath. I burned the paint off the high ridges, charring it through into the wood.

After this treatment the rasp worked to perfection. The whole job of burning and rasping only took about an hour per square of floor treated.

O. P. PIERCE.

Have You Made a Reputation?

To the Editor:

Kewanee, Ill.

In the summer of 1903 my partner and I built a cottage for the manager of a local concern. The owner furnished the material and we did the work by contract. We got along very well and made good wages. One day when we were putting on the inside finish the owner came and inspected the work we had done. Just before he left he came to me with a pleased expression on his face and said,

"You fellows are making a reputation."

After we had completed the cottage the owner told me he had some work up at the plant he would like to have me do. That was eleven years ago last October. I went and did the work, and am still there on the payroll as carpenter.

Have you made a reputation? If you make a good one it pays.

W.M. RULE.

Framing for Brick Veneer

To the Editor: Emerson, N. J.

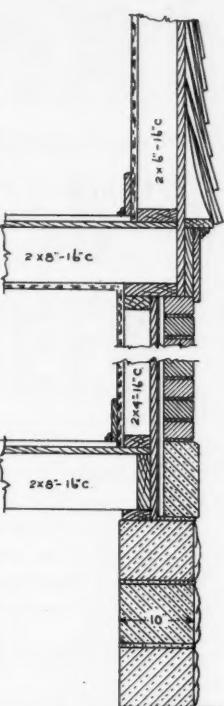
From the sketch and photo you will see what I do in order to get the wall plumb, where the first story is brick veneer and the second story shingled.

I am very much interested in the AMERICAN CARPENTER AND BUILDER and the Cement World, and in the six years that I have taken them have found many useful things. Every ambitious builder should take these journals.

NATALE LUCIA,
Carpenter and Contractor.

Note: While this makes a nice looking section, it cannot be considered a very safe one against wind storms. The diagonal sheathing that would otherwise form a tie, if the lower studding was set directly under the upper ones, does not in this case tie the two together.

—EDITOR.



House Sheathed for Brick Veneer.

Urge Ventilators for Bed Rooms

To the Editor:

Warm air, as everybody knows, rises upward; and as our lungs are always at a temperature of near 98°, which is very much warmer than the air in our rooms, the air which is inhaled into them is exhaled as warm air, and instantly rises to the ceiling, where it ought to be let out of the room at once to prevent the gases that it carries out of our lungs from mixing with the fresh air that we next should breathe. But how can the once breathed air get out from the top of sleeping rooms as they are now constructed? The fact is, it cannot get out because the tops of our rooms are all ceiled tightly and there is no way for it to escape. What, then, is to be done? Merely provide flues from the tops of our sleeping rooms, which may be readily opened.

Flues should also be located at the side of the room opposite the windows, one in each of the two corners. It is better to have the opening in these flues directly upward in the ceiling, if possible; but if it is necessary to locate the opening in

Chicago, Ill.

the side wall, it should be at the top of the room, the upper edge of the register directly at the ceiling. The register should, of course, have some practical means of closing all openings at times when needed, the same as a floor register, but it should be entirely open when persons are sleeping in the room. There should be at least one window in each sleeping room with a sill at the floor, the same as a door; this to admit fresh air to take the place of the breathed air flowing upward through the ventilating flue out of the room. If all doors and windows were closed no air could go up the flue, and so no benefit could be derived by having the flue. By opening the window (preferably at the floor) a direct current of air will circulate all the time, and if both the inlet and outlet are of ample size, the result will approach the benefits obtained by sleeping on sleeping porches, where fresh air flows all about the sleeper all the time.

The sleeping porch is the better of the two, but where that is unattainable—and in many cases they are impractical, especially for the entire family—the combined flue and floor window plan may be installed in every sleeping room in every new house and many old ones.

The thoroughly ventilated sleeping room has one advantage over a sleeping porch, and that is comfort in stormy or cold weather. The ventilation flue should run up through the roof, and have on its top some one of the several "tops" that serve to let the air out at all times and not let rain or snow in at any time. This plan enables one to obtain all the benefits of ventilation in stormy weather and yet be warm and comfortable while preparing for bed.

If architects and builders will talk and urge sleeping porches and thoroughly ventilated sleeping rooms they will be doing a great good to everyone whom they may induce to thus attain fresh air when sleeping as well as during the day.

H. C. CLARK.



An Improvement on the Square

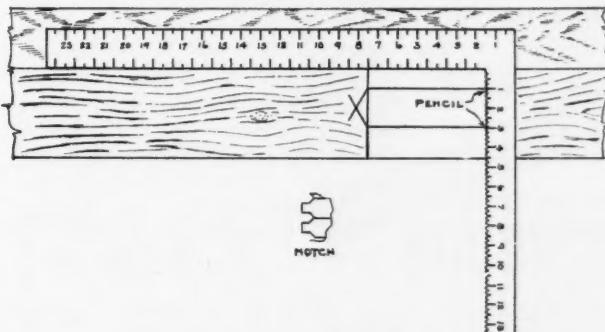
To the Editor:

McConnelsville, Ohio.

Am sending you a sketch of a steel square, which I have used for about three years and find it very handy.

Take an ordinary square and file notches on the inside of the tongue at every quarter inch mark. The notches are about $\frac{1}{8}$ of an inch wide and $\frac{3}{16}$ of an inch deep, tapering a little to a point at the bottom. Care should be taken to have the notches exactly in the $\frac{1}{4}$ -inch marks.

With this square, one can lay off heavy timbers faster than three men with any other and do the work much nicer and with more ease. It saves the turning of heavy timbers. Frame three sides and then turn quarter turn.



Steel Square with Notches Filed in for Gauging.

This square is best for pencil, but the awl may be used on hard wood.

Hook the square over the timber in the usual way, place the pencil in the notch where you wish the mark, then draw the square toward you as you would a gauge. There are hundreds of ways this square can be used to an advantage.

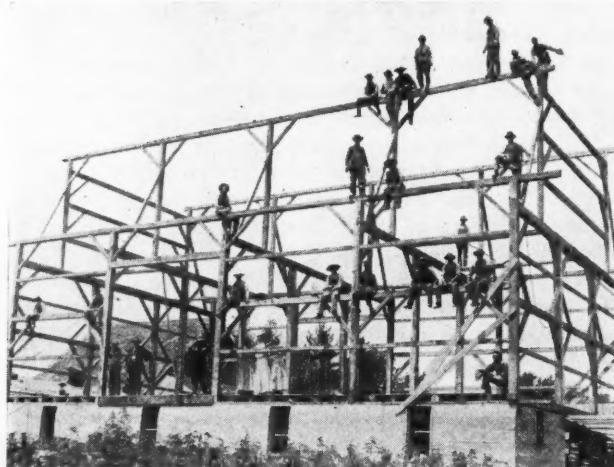
L. E. M.

Correspondence Department

Iowa Barn Raising

To the Editor:

Thorpe, Iowa.
I am sending you a photo of barn which I built last fall on the Jesse Raymond farm. This barn is 36 by 56 feet,



Barn Raising Bee at Thorpe, Ia.

18-foot posts, with a basement. The photo shows the job just after it was raised.

J. M. THOMPSON,

Contractor and Builder.

Concrete Street Crossings

To the Editor:

Linton, N. D.

I would like to have a little information in regard to the construction of a concrete street crossing to be used on a street where ordinary traffic occurs. Please tell me the depth of concrete necessary and amount of crown which should be allowed in order that water may run off from the crossing.

ELMER D. FOGLE.

Answer: The foundations for concrete street crossings should be about the same as for sidewalks. That is, an excavation should be made to a depth of 6 to 10 inches below the lower face of the concrete base and filled with crushed stone, broken brick or some porous material which will prevent the water from collecting under the slab. The base should consist of a layer of concrete 4½ to 6 inches deep composed of 1 part Portland cement, 2 parts clean sand and 4 parts crushed stone thoroughly mixed, properly wetted and tamped to uniform grade. The surface should consist of a layer 1½ inches thick, composed of 1 part Portland cement, and 1½ to 2 parts of good, clean, sharp, screened sand made into a thick mortar. This top surface should be thoroughly troweled into the base before the base has had a chance to harden, and finish to conform with the grade established by the City Engineer. It is commonly stated that the crowning on slab should not be over 3/8-inch to the foot.

EDITOR.

Combined Concrete and Brick Chimney

To the Editor:

Cleveland, Ohio.

In the January AMERICAN CARPENTER AND BUILDER I was much interested in the article, "Building a Concrete Chimney."

I would like to ask whether or not it is practical to build a tile lined concrete chimney as far as the roof with brick above the roof line. How would the cost compare with the ordinary brick chimney?

L. H. BACHER, Jr.

Answer: We see no reason why this could not be done if the tile lining is carried up throughout the entire height of the chimney, and a suitable square shoulder left at the top of the concrete after it has passed through the roof surface, care being taken to provide proper flashings where the chim-

ney passes through the roof.

While we have no exact figures to prove the statement, we believe that the concrete chimney would cost a little more than the brick chimney under the same circumstances.

EDITOR.

Cracked Plaster Hard to Fix

To the Editor:

Clarksburg, W. Va.

Some time ago I built a house, and now the plaster is badly cracked in some of the rooms; same is finished with a white coat. Kindly advise what would be suitable to have these cracks filled with, as I desire to have the walls painted in oil.

C. T. STEALEY.

Answer: The only way which we know of filling cracks of this kind is to use plaster of Paris. We doubt if satisfactory results will be obtained on walls which have cracked badly even if the cracks have been filled and then the wall painted in oil. If the cracks are due to settlement of the building the chances are that they will open up again after the walls are painted and cause an unsightly appearance.

Why not use wall board?

EDITOR.

A Basement Drying Compound

To the Editor:

Shell Lake, Wis.

Will you please send me advice as to how to keep a vault dry in a basement?

W. B. HANSEN.

Answer: It is claimed that calcium chloride placed in an open dish or can and left in the vault will absorb dampness to a large extent. One pound of this salt will do for a vault of large size.

This chemical attracts the water from the air, which collects in the dishes or containers. After the water has collected the containers may be heated to drive off the water, whereby the salt crystallizes again and becomes fit for renewed use.

EDITOR.

Plans and Builds His First Residence

To the Editor:

Clarkson, Neb.

I am sending you a photograph of the first house I have built. Have been carpentering for three years, but this is the first year I have worked on my own hook.

I planned this house myself. There are two china closets



Good Looking House Designed and Built by Mr. Hanel.

and an open stairway. I had the china closets plastered inside and saved lots of time by it.

Would not be without the AMERICAN CARPENTER AND BUILDER. It has helped me to get new ideas.

LADA E. HANEL.

(Correspondence Department Continued to Page 102)

Estimates FREE!

Lower Than Others! GUARANTEED Right!

JAP-A-TOP ROOFING

Beautiful—Durable, Surface-faced with genuine slate, 2 colors—Red and Grayish Green.

Per roll of 100 Square Feet—\$2.25.

Jap-A-Top Diamond Point Roofing—in rolls but goes on to look like shingles—per roll of 100 sq. ft.—\$3.00.

Price per sq. of Jap-A-Top Shingles—424 Shingles—\$4.75.

Also Other Quality Roofing as low per roll of 100 sq. ft.—\$2.00 see Catalog, pages 117 to 125.

Windows

We have plain and fancy windows in all standard sizes and at all prices. Check Rail Windows 70¢ up. Plain rail, glazed, 76¢ up. Transoms, 38¢ each. 8 x 10 window glass 83¢ per light. Any size at equally low prices. Safe delivery guaranteed. Dealers charge 3 to 5 times our prices. See pages 41 to 46 of Catalog.

Builders' Hardware

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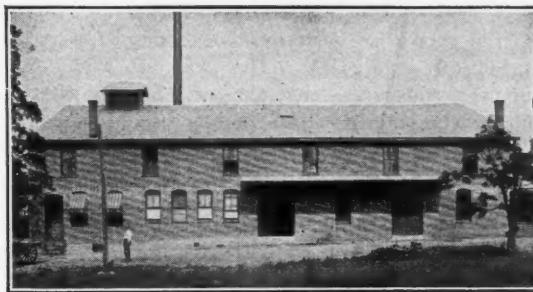


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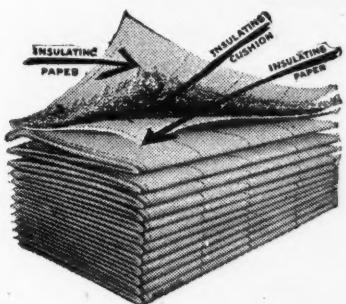
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WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

A Queer Tangle

ELABORATE COLUMBUS APARTMENT CAN'T BE FINISHED.

By C. C. Johnston

Graycourt, an apartment house of Columbus, Ohio, containing over 250 rooms, has had as its sole occupants for the past five years one family which consists of two people. The building contains 56 suites, either four or five rooms each. The enterprise was a promoter's scheme. The ground was acquired on perpetual lease at an annual cash rental. Bonds were issued with which to raise funds for the erection of the building. Some of these securities were floated for real money, and others were traded to contractors and material men. The improvement was started in 1903. Financial troubles developed early, and it required three years to bring the building into existence. When almost ready for occupancy the scheme collapsed. Its affairs were in such a hopeless tangle that they have not yet been straightened out.

In 1906 the enterprise went into the hands of a receiver and was bid off at \$108,000. This was set aside at the request of the creditors as being too low. Shortly afterward the promoter, who had drifted to the other side of the world, died at Manila, of cholera. This terminated the receivership automatically and necessitated the appointment of an executor. Under the laws of Ohio such an official has no power to complete an improvement, a course which had been decided upon by the creditors, and the building after repeated attempts has failed to sell in its present form at anything like a reasonable figure. It is stated by a competent architect that at the existing price of materials it would cost \$175,000 to reproduce the building. From \$20,000 to \$30,000 would put it in shape for occupancy. The last appraisal is \$60,000. About \$10,000 in taxes have accrued, and the

ground rental remains unpaid. Even should the building sell at full appraisement the bondholders and lean-holders would be completely wiped out. The building is of concrete, with walls of gray sandstone, with four floors and roof garden, and of quite handsome architecture. Its location is central.

The caretakers, C. G. Pemberton and wife, a middle-aged couple, utilize five rooms on the second floor for their house-keeping. In a section of the basement floor Mr. Pemberton runs a small job printing office. Otherwise the building has never had a tenant. It is in the hands of the courts, with no immediate prospect of ever getting out of them.



Forty "Pullmans" on Kokomo School

The Pullman Automatic Ventilator Mfg. Co., of York, Pa., recently made a shipment of forty "Pullman" roof ventilators to a contractor in Kokomo City, Ind., for use on a public school in that city. These ventilators ranged in size from 12 inches up to 54 inches and were made of galvanized steel.

During the last few years, architects and engineers have begun to appreciate the scientific design and superior workmanship of the "Pullman" roof ventilator with the result that it is being specified on buildings where absolute exhaust of the foul air must be assured.

The "Pullman" ventilator is of open design; that is, it has no storm band to interfere with the free exhaust of the foul air, and as it has no moving parts, there is nothing to get out of order. The ventilator is built in any size from 12 inches up to and including 96 inches, in galvanized steel or copper, in any gauge of metal.

Complete descriptive matter on this ventilator may be had by writing the manufacturer.



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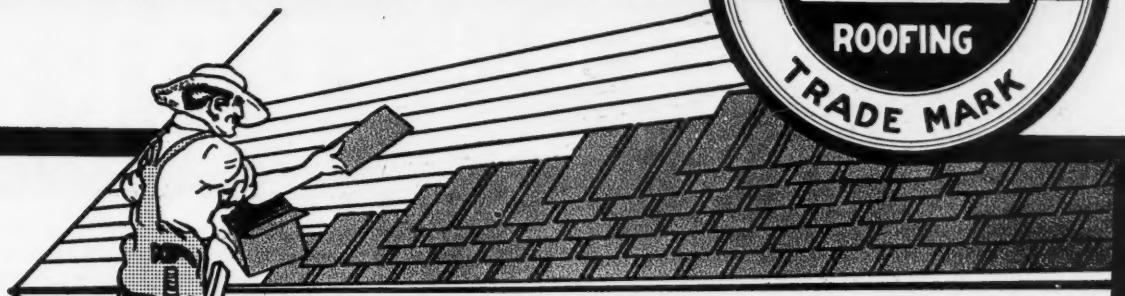
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The mark "Vulcanite" on Roofing means that you can absolutely rely on it for full value in service and satisfaction.

We manufacture several styles of Asphalt Roofings, the best known being Vulcanite Asphalt Shingles. Vulcanite Ornamental Roofing in rolls, Vulcanite Continuous strip shingle, Vulcanite-Tile, Vulcanite Roll Roofings, etc. They come in rich colorings and each represents the best value.

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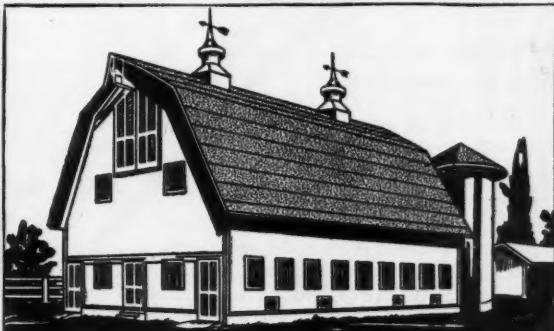
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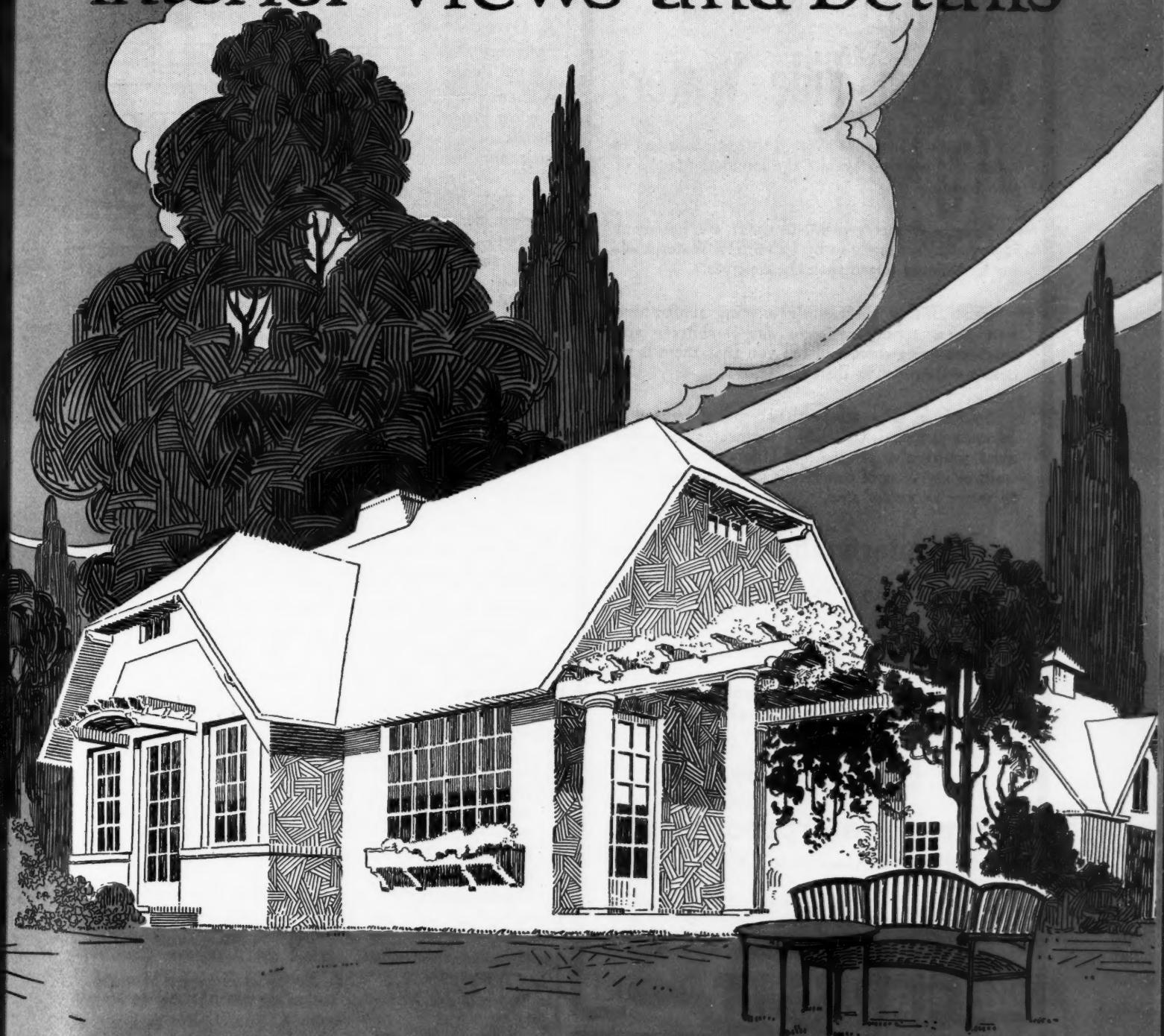
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CERESIT is successfully meeting similar and *even worse* conditions *every day*—architects and engineers everywhere will tell you that there is no better waterproofing than CERESIT.

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Lots of Nails—

OR WILL IT STAY WHERE YOU PUT IT?

To the Editor:

Kewanee, Ill.

Several years ago I built an eight-room house for myself in Grinnell, Iowa. It was 28 by 32 feet and two stories high. The foundation was of brick, 14 inches thick, with an air space in the wall. It was sheathed on the outside with 10-inch shiplap, studding set 16 inches on centers. I put four ten-penny nails in each board in every stud, which made the nails a little less than $2\frac{1}{2}$ inches apart, as the boards after milling measured only $9\frac{1}{4}$ inches in width. All together I used about 9 tons of nails in the house, and while I owned it, it never settled enough to make it necessary to ease any of the doors.

A good foundation, good lumber and plenty of nails well driven go a long way toward making a building stay where it is put.

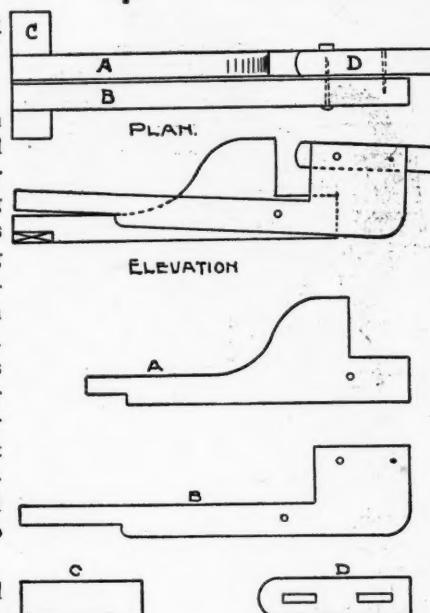
W.M. RULE.

A Door Jack

Ellsworth, Iowa.

To the Editor:

I am herewith sending plans and details of a door jack for holding sash and doors while being worked. B is fastened to A with bolt and burr. When foot is pressed on lever B the sash or door is held rigid. Slot in D allows of adjustment; it is held firm by thumb screw.



As this is a good time to make home-made tools, thought it a good time to send it in.

GEORGE HOLT.

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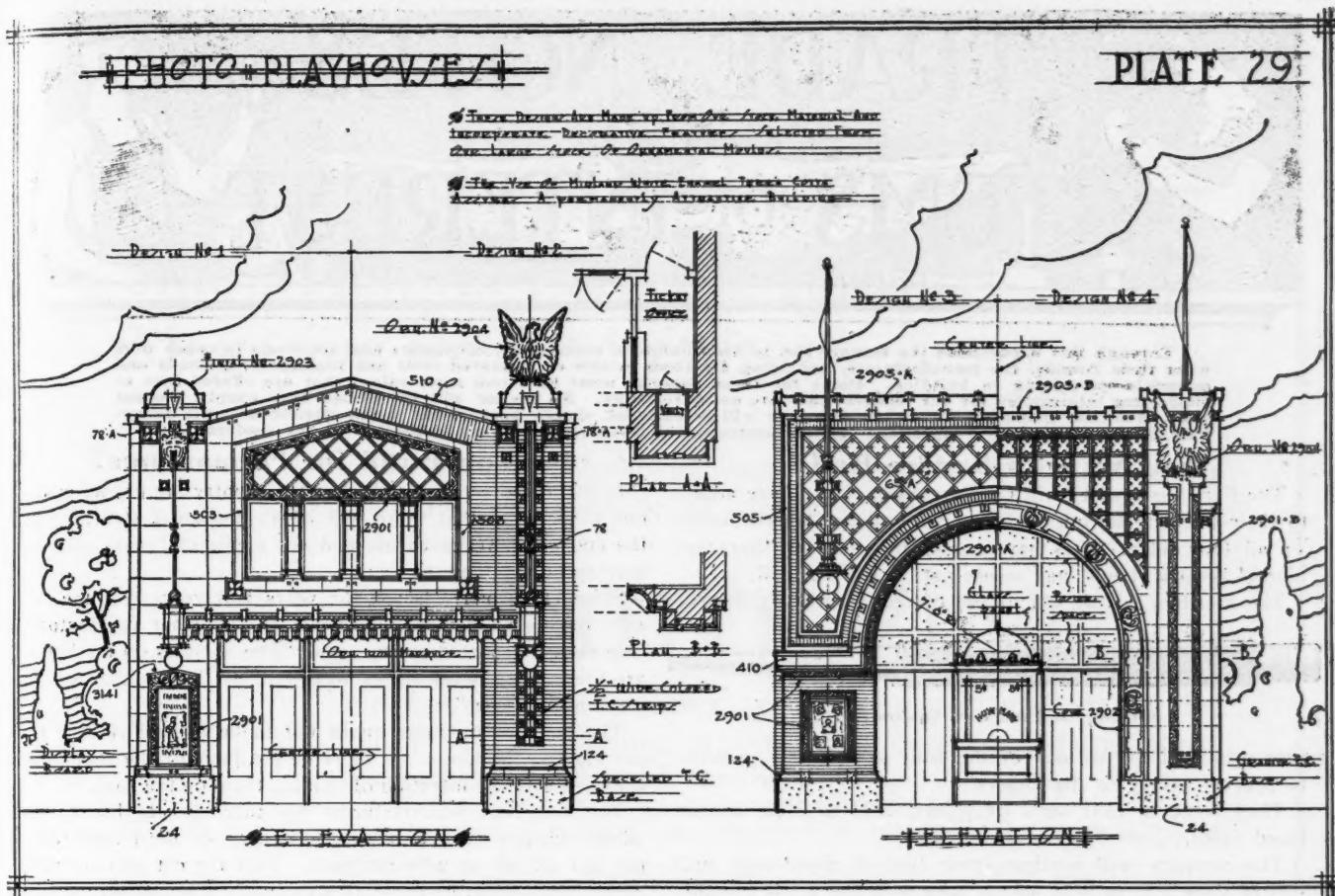
E. L. HATFIELD, Business Manager.

Sworn to and subscribed before me this 19th day of March, 1915.

JEANETTE A. NICHOL, Notary Public.

[SEAL]

(My commission expires July 6, 1915.)



A plate from our 1915 Portfolio (reduced). Write for it today—it's full of valuable information.

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¶ On this page we suggest a few designs for the small playhouse. These designs are built up entirely from our stock moulds, thus eliminating the expense of special modeling.

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AND

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Through this department the Editors aim to keep builders, contractors, carpenters and architects in touch with what their friends, the manufacturers, are doing for them in new or improved tools and machinery, methods and materials—pertaining to building. Items for these columns must have real news value; they are offered here as interesting information for our readers; they are not advertising. No matter will be printed here simply because some advertiser wishes it. Likewise, no matter will be excluded simply because the article described is not advertised in this magazine. Suggestions for the betterment of this department are requested of our readers.

Nail Set with Square Body

The Syracuse Twist Drill Co., Syracuse, N. Y., have added to their line an improved nail set with square body knurled on all four sides. They have named this nail set "Syracuse Norol" because it will stay where put; it will not roll.

The knurling is full and of the correct length to afford a



Syracuse Nail Set with Square Body.

firm grip, and the corners of the body are slightly rounded to prevent injury to the fingers.

They come in four sizes of points, 2/32 to 5/32, and in blued finish.

The company will continue their line of round-body nail sets in sizes 2/32 to 8/32, which have been the world's standard for 15 years.

Do You Build for Permanence?

Builders and architects all over the country are urging every one to build so that there will be a substantial structure at the end of 50 years' of use and not a pile of "junk," as has been too often the case.

Shingles formerly lasted for years and years, but the results obtained today with them are anything but satisfactory. One man is reported to have said, "The shingles on my house are fine. They never rot or wear out, but I wish they would stay on the house."

The shingles certainly ought not to be blamed if they do not stay on the house. It must be the fault of the nails that are used with the intention of holding them on the roof.

The Cut Nail manufacturers say that the old houses on which shingles have remained for years, or until they wore out, are all put on with cut nails. That the cut nail is much more durable than the wire nail is generally admitted and is well substantiated by examples showing the lasting qualities of the



Craftsman "E"—Morgan Door with Leaded L'Art Noveau design, in Plain Oak or Birch. This design has brought an immense amount of business because it is so well liked. The builders in your vicinity will like it also. See Morgan Millwork Handbook

Recommend

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Morgan door designs are sellers and you can convince the owner of a cottage, bungalow or residence to see the importance of increasing the beauty and permanent value of his building by using Morgan doors.

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Eastern Warehouse and Display:
Morgan Millwork Co., Baltimore

DISPLAYS: 6 E. 39th Street, New York
309 Palmer Building, Detroit
Bldg. Exhibit, Insurance Exch., Chicago

An Important Message— and a Helpful Free Bi-Monthly Magazine for Contractors

Every contractor knows that no other wood works so easily under his tools, holds in place so perfectly without warping, checking, or opening at the joints—or lasts so long as old-fashioned

WHITE PINE

He knows that no other wood compares with it for the outside of a building, where it is exposed to and must withstand all kinds of weather.

But for some reason an impression prevails that the supply of White Pine is practically exhausted. And many contractors have come to believe it.

The fact is—White Pine is still abundantly available today, as it always has been, in all grades and in any quantities desired, and can be purchased in all markets at reasonable prices, when considering its value as a structural wood.

If the Lumber Dealers supplying the material for those for whom you are building are at any time unable to furnish it, we would appreciate the opportunity of being helpful in securing it.

A Magazine Every Contractor Should Have

Next month we will begin the publication of a bi-monthly architectural White Pine magazine for free distribution among contractors and architects. Every issue will be full of valuable and helpful information for contractors and builders.

If this magazine does not reach you, kindly advise us and we will be pleased to place your name on our mailing list.

Address, WHITE PINE BUREAU,
1535 Merchants Bank Building, St. Paul, Minn.

Representing
The Northern Pine Manufacturers
Association of Minnesota, Wisconsin
and Michigan, and The Associated
White Pine Manufacturers of Idaho

Weathered Gray BIRCH

Birch trim, finished in "**Weathered Gray**," gives that wonderfully pleasing and dainty effect for which many have sought in vain.

Records do not disclose any other wood, native or imported, with which the same clean and inviting effect can be secured. It is an excellent variation from enameled woodwork, now employed so extensively in the Modern Colonial home.

Finished samples, showing Weathered Gray, and other finishes, are making friends wherever they go. Neatly packed and mailed upon receipt of 10 cents, stamps or silver.

When writing for the samples, ask for Birch Book C.

*Birch Book C will tell you all about Birch and why it is offered as the **genuine thing**—**Genuine Birch**—and not as a substitute for any other wood.*

**Northern
Hemlock & Hardwood
Manufacturers' Association**
Dept. C - - - Wausau, Wis.

cut nail. The common wire nail rusts rapidly and soon loses its holding power. Then the shingles start to blow away and the blame is put on them instead of on the nail, where it belongs.

Another important feature of nails is their holding power. In authoritative tests cut nails have shown a remarkable improvement over wire nails. This increased strength is anywhere from 47% to 135%.

From the two qualities by which a nail should be judged, namely, durability and holding power, the cut nail is the winner. We think our readers will be wise if they look up the advertisement of the leading cut nail manufacturers; it is on another page of this issue; and write to one of the members for information and samples of the cut nail.

The firms that are carrying on this better building campaign and recommending the use of cut nails are:

Norton Iron Works, Ashland, Ky.

La Belle Iron Works, Steubenville, O.

Van Alen & Co., E. G. Van Alen, Northumberland, Pa.

E. & G. Brooke Iron Company, Birdsboro, Pa.

Williamsport Iron & Nail Company, Williamsport, Pa.

Geo. B. Lessig Company, Pottstown, Pa.

Tremont Nail Company, West Wareham, Mass.



Dixon's "Atom" Eraser No. 861

This is a faithful likeness of the smallest member in the Dixon family of erasive rubbers. It is, despite size and price, of the same pure and sturdy stock of which its family so proudly boasts. Socially unlike its relatives, Dixon's "Atom" eraser No. 861 serves to rectify the pen and pencil mistakes of *all* who err.



"Atom" erasers are packed in quarter gross boxes. Prices and further information will be sent gladly upon request to the Joseph Dixon Crucible Company, Jersey City, N. J.

"Red Devil" Cutting Pinchers

Like any other man with red blood in his veins, the carpenter values among his most precious earthly possessions, his reputation as a skilled mechanic.

The reason is not because on it depends largely his bread and butter—the reason is more deep-seated than that. It is the pride of craftsmanship of which American labor is so justly proud.

This explains why carpenters so often refer to "Red Devil" tools as the "mechanic's pets."

The makers of "Red Devil" tools, the Smith & Hemenway Co., Inc., are not satisfied to produce tools that simply rival or excel others in quality, in durability, in looks.

The ambition of the Smith & Hemenway Co., Inc., is that no tool is worth joining the "Red Devil" family unless it is an improvement on other tools in design and in effectiveness.

Take, for example, the "Red Devil" carpenter's cutting pinchers. This is a new tool—just born. It is an infant in age, a baby in size, but a giant in strength. It weighs but half of the ordinary tool of this kind, yet exerts 50 per cent greater leverage.

The manufacturers, Smith & Hemenway Co., Inc., 156 Chambers Street, New York, will be glad to send their catalog to any member of the brotherhood free on request. It is a family album of tools worth while having.

The "Jaeger Little" Concrete Mixer

Whenever the writer sees a machine running, and if it is possible to spare the time, he always stops to investigate, in hopes of seeing something new.

The other day, while in Arcanum, Ohio, he saw a small

You're losing \$300 to \$3000 a year if you aren't dealing with H-L-F

Double your profits, *double your profits*, DOUBLE YOUR PROFITS—for three years we've been urging you to do it and *pointing the way*. Hundreds of carpenters and contractors have jumped at the chance, and are making \$300, \$500, \$1,000, \$2,000 and in a few cases even more *extra* profit each year. Here are just five jobs on which \$2500 was saved on the material bills; Price Piper of Jeffers, Mont., saved \$400—J. G. Petway of Nashville, Tenn., saved \$600—A. W. McDonald of Hopkinton, Iowa, saved \$500—W. H. Glenn of Imbler, Ore., saved \$350. Andrew Espy of Ismay, Montana, saved \$700. Give H-L-F one chance to figure on your lumber—do it this spring—now—and you'll say it was one of the luckiest moves you ever made in your life, for you'll become a regular H-L-F customer, and make doubled profits or better.

For a quick price Simply answer These questions—

Your answers will enable our expert estimators to send you a bona-fide price on the job, freight included. Copy these questions if you have more than one job on which you want to figure.

State style roof preferred



Fill in the answers to the questions and mail today.

Width (outside measure)..... Length (outside measure).....
 Do you want one-story house?..... Story and half house?.....
 Two-story house?..... Check the rooms you want—living-room (), dining-room (), kitchen (), den (), library (), music-room (), bedrooms—how many? (), bathroom (), porches what size?.....
 Will outside be wood?..... Brick?..... Brick veneer?.....
 Concrete blocks?..... What sort of siding?..... Or will you use shingles?..... What height ceilings downstairs?.....
 Upstairs?..... What height outside wall studs?..... Do you prefer plaster or wall board?.....
 Do you want an attic?.....

New edition just issued.
Worth a thousand dimes to you.

QUALITY LUMBER DIRECT TO USER

Better still— send us bill of materials

We'll start figuring the very day we hear from you. We're prepared to give day and night estimating service at this time of the year. You'll get a quick bid, and an accurate one. The lowness of our prices will amaze you—you'll be enabled to make more profit than you ever imagined was possible.

Give your customers better lumber while making more money yourself

H-L-F lumber is clean and straight grained. Old growth yellow fir, red cedar, etc., from giant trees in the Puget Sound region. Every timber, board and shingle guaranteed. Satisfaction in every way, shape and manner, also guaranteed. Inspection allowed before shipment is accepted. No way in which you can lose—and big increase in profits to be gained. We can give you quick shipments. Railroads are giving great delivery service this spring. Write quick for present H-L-F prices on your present jobs. Protect yourself while the price is low.

Send for new Plan Book

The new edition—just issued—is way ahead of the former edition that was such a big hit—write quick—the first edition is going fast. One hundred practical homes, the kind your customers want, pictures from photographs, specifications, floor plans and guaranteed estimates of cost. Among the houses are the five on which Messrs. Piper, Petway, McDonald, Glenn and Espy made a combined saving of \$2500. Many dollars' worth of ideas—for only ten cents. Send for it today.

Hewitt-Lea-Funck Co.
908 Crary Building,
Seattle, Wash.

QUALITY LUMBER

DIRECT TO USER

Saved \$250

Feb. 5th, 1915
I am well pleased with my buildings and saved at least \$250.00. I am well satisfied with your way of doing business, and if I was building again, you would certainly get my patronage."

(Signed) L. C. Young,
Bonilla, S. Dak.

Hewitt-Lea-Funck Co., 908 Crary Bldg., Seattle, Wash.

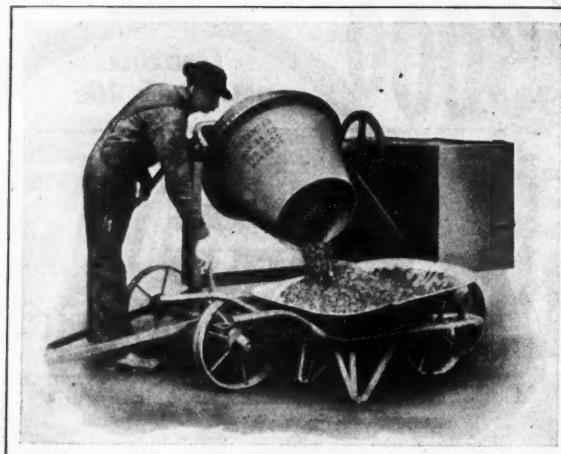
Gentlemen:—Please send me the following

Delivered, freight-paid price of enclosed list of materials (no charge for quotation)
 Prize Plan Book (send 10 cents)
 H-L-F House Pricer (free)
 Information on H-L-F patented stud and wall board
 Barn Builder's Guide (send 4 cents)
 Millwork Catalog (free)
 Plan Sheet (free)

Name..... Business.....

Street or R. F. D. No..... Post Office.....

State..... When are you going to build?.....



The New Small Size Jaeger Mixer.

concrete mixer running and a gang of men hustling around it; and on investigation found it was a small concrete mixer made by The Jaeger Machine Co., Columbus, Ohio. Engaging the owner in conversation he found him to be a carpenter contractor, who had never before until this year used a mixer, but as many of his jobs nowadays call for some part of them at least to be made of concrete, he decided to go in the market for a small mixer. The result was that after due investigation he purchased the smallest size, the new size, 3 cu. ft. capacity per batch, known as the "Jaeger Little" mixer. They have given it this name from the fact that it is the smallest mixer these people make, and on account of the extremely low price.

This contractor stated that when the mixer was pulled on the job his men gave him the laugh; and the man that was picked out to feed the material said he could "bury that little

thing with gravel in a little while." The mixer was started up, however, and it got busy without a minute's delay or trouble and the man that said he could "bury" it—within 30 minutes found that he was not feeding it fast enough and he called for another man and then for another and he kept right on getting busy. Finally the man that said he could "bury" it, said: "That little thing is the greatest gravel eater I ever saw."

On timing it we found that it truly did mix a "batch a minute" with ease, with the result that this contractor not only is able to do his concrete work in a great deal less time, but at a much less expense and thereby makes it possible for him to finish his jobs in less time, and will enable him before the year is over to take many additional jobs that otherwise he would not be able to take care of.

Full information will be cheerfully given by The Jaeger Machine Co., 318 W. Rich St., Columbus, Ohio, on this as well as any of their other mixers, and we would suggest to our readers that when in the market, they get in communication with the above mentioned Company.



Conveyor Saves Time

The Dow Wire & Iron Works, Louisville, Ky., are building a spiral sheet metal conveyor extending from the sixth floor to the basement in the store of the Heer-Andres Co., of Springfield, Mo. This conveyor will handle all kinds of department store packages from the different floors, delivering them to the basement, from which point they are delivered to their wagons. A great labor saving device, does not require any elevator boy, and no machinery about it to get out of order.

The Dow line of ornamental iron work, screens, etc., needs no recommendation to builders and contractors.

OLD BUILDINGS MADE NEW

The plain square lines of this old time house have been relieved and the whole building made to look new by using

UNION METAL COLUMNS

"THE ONES THAT LAST A LIFETIME"

Every builder knows of many cases like this where a little remodeling and the addition of an artistic feature like the column, would double the value of property.

Union Metal Columns offer you a splendid opportunity to go after such work. They are correct in design, practically everlasting and so low in cost that they can be used on the most inexpensive job.

These columns are made of open hearth steel, specially galvanized, then fluted and tapered by patented machinery. They have the required entasis and stopped flutes. Ten designs and all sizes.

Send for handsome book showing buildings where they have been used.

Complete Catalog in SWEET'S

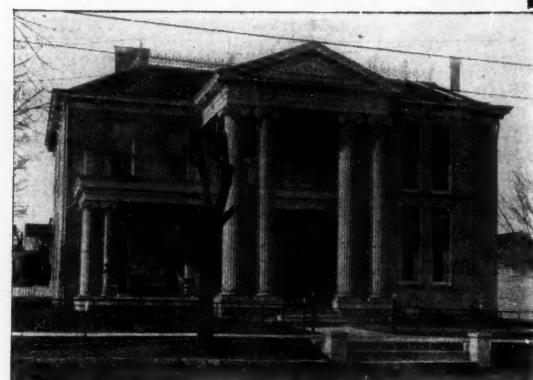
THE UNION METAL MFG. CO., CANTON, O.



Before Remodeling



Design No. 237



After Remodeling

Right for your purpose.

Ripe for your use.

Cream Brand Arkansas Soft Pine

Your Dealer Can Supply You

"Cream Brand" is a special grade of Arkansas Soft Pine, selected because of its uniform character, cream color, soft texture, freedom from pitch, and now is offered for all manner of interior enameled trim and woodwork.

With the possible exception of the old cork pine of the north nothing is better suited for the purpose.

The return to the colonial style of architecture has increased the demand for enameled trim. Cream Brand Arkansas Soft Pine is an ideal wood for such work.

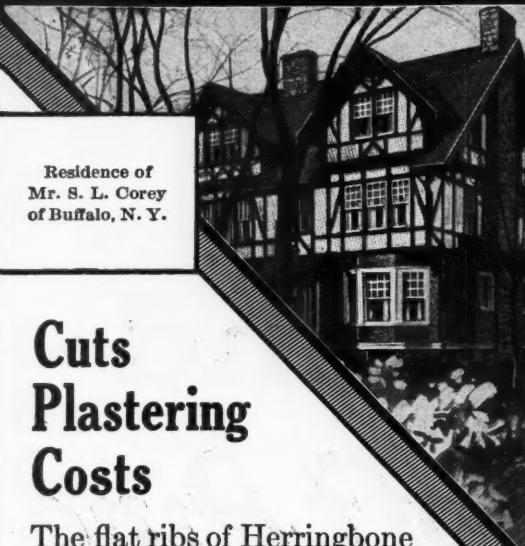
|| *When the woodwork is to be finished "natural," stained or dyed regular grades should be used. Send for "in the white" samples of the Cream Brand.* ||

Arkansas Soft Pine Bureau

608 South Dearborn Street

Chicago, Illinois

Residence of
Mr. S. L. Corey
of Buffalo, N. Y.



Cuts Plastering Costs

The flat ribs of Herringbone spread instead of cut the stucco and plaster. The material goes further. On the scratch coat there is often a saving of 30%.

Herringbone is rigid—offers a firm surface for plaster and insures an even coat.

Herringbone

Rigid Metal Lath

goes up fast. Has interlocking selvage edges. Wiring between studs is unnecessary. Hear the whole truth about Herringbone. Just ask us for the Herringbone Booklet. It's free. Get it, use it, and it will be valuable. Send today.

The General Fireproofing Co.

6500 Logan Avenue
Youngstown, Ohio

Makers also of Self-Sentering—the concrete reinforcing that eliminates the need of forms.



GE
Trade Mark

TRADE MARK
Reg. U. S. Pat. Off.

Herringbone Armco Iron Lath, the most rust-resisting metal in the world was used in the Woolworth Bldg. and many others.

Can You Name this Hoist?

The H. B. Sackett Screen & Chute Company are giving our readers the opportunity of winning, free of charge, one of their hoists, by giving it an appropriate name. This contest is described in their advertisement on another page of this issue. Look it up, as it may be worth money to you.

The manufacturers suggest this small hoist for the smaller jobs. They claim that, with two men at the top and two at the bottom, brick and mortar for fifteen masons can be easily supplied. This shows a great saving over the hod method of furnishing material. We suggest that our readers look over their offer as stated in their advertisement and then write to them for full particulars regarding their contest. Address communications to the H. B. Sackett Screen & Chute Company, 1683 Elston Avenue, Chicago, Ill.



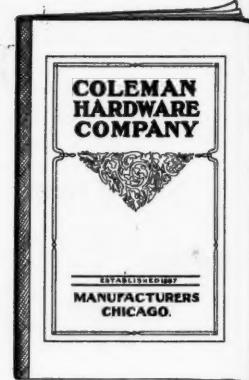
Sash Pulleys for All Uses

In looking over the new catalog of the Coleman Hardware Company one is impressed with the great variety of sash pulleys that are required for the many different kinds of sash and the many positions in which they are placed.

Many builders and contractors get into a rut on the use of hardware of all kinds. They form the habit of using one thing for all purposes because it has been satisfactory in one instance. This is especially true of sash fixtures. One of the mottos of the modern business world is, "Don't get into a rut!" You will really be surprised, on looking through their catalog, at the great variety of styles of sash pulleys.

Write to the Coleman Hardware Company, 122 South Michigan Ave., Chicago, Ill., and get their descriptive catalog on one of the most complete lines of builders' hardware, and especially sash pulleys, that is to be found anywhere. Study sash pulleys and install the one that best fits the job. The manufacturers challenge you to find a piece of work that one of their many styles does not fit. All these various styles are shown in the catalog and described.

This concern was established in 1867 and is today probably the foremost producer of cast pulleys. We suggest that our readers get acquainted with them. Write for their interesting catalog.



Valuable Catalog of
Sash Pulleys and Other
Builders' Hardware Made
by Coleman Hardware Co.



New Catalog of Ellis Engine Company

The Ellis Engine Co., 2863 E. Gd., Boulevard, Detroit, Mich., have recently issued a new catalog which contains much very interesting material for the user or owner of any gas or internal combustion engine.

This catalog is attractively made up and has a description of the well known Ellis engine and a discussion of its advantages. It is profusely illustrated with drawings showing the construction and operation of their engine.

The manufacturers claim great economy with their engine and their claims seem to be substantiated by the testimonials from various users of it.

We would advise our readers to get acquainted with this company and its proposition before buying an engine. The information in their catalog is well worth having. Write for your copy today.

Your Responsibility

Mr. Carpenter and Builder, does not cease when you turn over the keys of a new dwelling to its owners. Will their first joy change to sorrow, owing to faulty planning, construction, or materials?

Always Specify

CLINTON WIRE LATH

It is the ideal support for stucco; it assures a permanent job, free from cracks and faults, and all future disappointments. Owing to its peculiar construction, it becomes an integral part of the plaster or stucco and is entirely imbedded therein away from air, moisture, and fire.

The houses you have erected in a community are what your work is judged by. No matter how conscientious you may have been as to workmanship, if poor materials have been used, through lack of information, **your** reputation will suffer. Specify **only** the best. **Clinton Wire Lath** is the best, with a reputation for quality reaching back over a period of more than fifty years to prove our assertions. The greatest architects and builders specify and use it. It has been a **reputation builder** for them—it will be for you, if you adopt it.

Send for our two books
"Successful Stucco Houses"

and

**"Clinton Handbook
 on Lath and Plaster"**

Both are profusely illustrated and contain valuable tables and data, also comparative costs that you no doubt will be glad to get.

Correspondence cheerfully answered by our Engineering Department.

Clinton Wire Cloth Co.
 CLINTON, MASS.

New York

Boston

Chicago

First Power Loom Weavers of Wire Cloth
 in the World.

Makers of "Pompeian Bronze," "Golden Bronze," Clinton Painted and "Silver Finish" Screen Cloths, Clinton "Silver Finish" Brand Poultry Netting, Hardware Cloth, Clinton Electrically-Welded Fabric for Reinforcing Concrete, and Clinton Perforated Metal Products.

Some Roofing Facts

A building is no better than the material that roofs it. This is a fact that every reader of this paper, and also those for whom they build, should take into consideration. Furthermore the treatment of the roof can either make or mar the entire structure it surmounts. Nothing adds more to the outside attractiveness of a residence than the treatment of the roof.

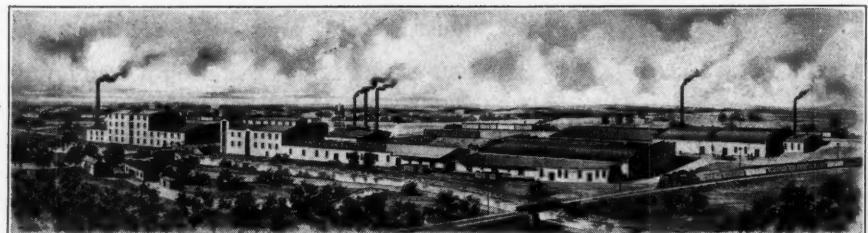
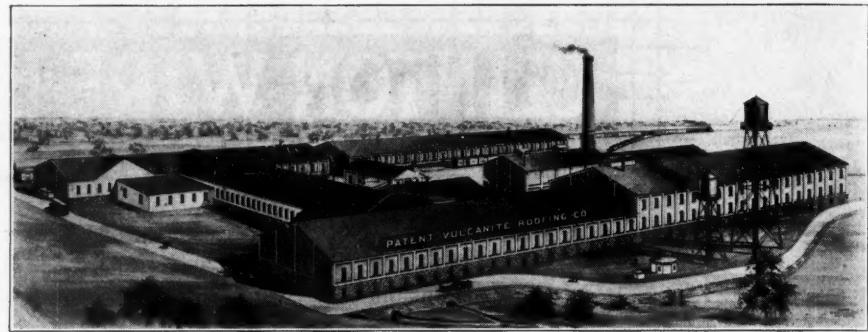
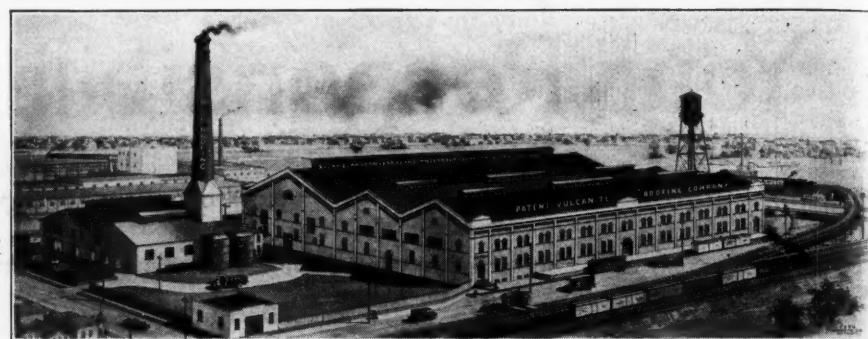
How many of you men who read these columns are asked as to what materials shall be used to roof the building you are planning?—and we wonder just what your answer is. A great and growing field along roofing lines is opened to every reader of this paper in territory not already covered by the

**Anderson,
Indiana,
Plant.**

Patent Vulcanite Roofing Company, 2256 W. 49th St., Chicago, Ill. This company is among the largest manufacturers of prepared roofing in the world. Theirs is a standard, high-grade product that has stood the test of time, and a product that has made itself nationally known through its ability to give utmost satisfaction on buildings of all kinds.

"Vulcanite" is the trade name under which the Patent Vulcanite Roofing Company register their roofing. This trade-mark, "Vulcanite,"

**Franklin,
Ohio,
Plant.**



More than 100 Stucco Houses were erected in Akron, Ohio—Willis & Carley Co., Contractors. Sykes' Expanded Cup Self-Furring Metal Lath was used. Photo shows a few of these 100 houses.

Metal Lath is the logical economic material. It saves **space, labor, money.** Self-Furring Metal Lath saves more money. Write for our Free Book about and our Free Sample of

Sykes' Expanded Cup Metal Lath

Self-Furring—Saves 3 to 5 Cents a Square Yard

Heavier, Stronger and Better than others when cut from the same gauge metal because Sykes' Lath is cut from wider strand. In judging metal lath consider **Weight** and **Gauge**—not Gauge alone. Sykes' Expanded Cup Lath becomes firmly imbedded in plaster or stucco—a true backbone of everlasting strength.

Best for Plaster Work, Overcoating and Stucco Work. Can't Be Applied Wrong.

Approved by Architects. Indorsed by U. S. Government for Post Office work.
If you're interested in good building write to us.

SYKES METAL LATH & ROOFING CO.
504 RIVER ROAD



FREE
We'll send you free sample of lath and a set of Complete Specifications for Stucco and Metal Lath. Write for it and save money.

No Paint— No Repairs—Just Wear—Use PEARL for Screens

What's the use of screening with a wire cloth you know will have to be repaired, repainted or renewed in a season or two at most?

Practice *real* economy. Screen with genuine Gilbert & Bennett PEARL Wire Cloth. Rust, *not* wear, ruins screens. PEARL Wire Cloth is as near rust-proof as metal can be made and consequently as near wear-proof as a screen can be.



*For Screening Doors,
Windows and Porches*

Made in Two Weights—Regular and Extra Heavy

Smooth surfaced and with a metallic lustre, PEARL is beautiful as a screen can be. Easy on the eyes and less visible the longer it's used.

Don't be deceived. There can not be a "just the same as PEARL." The manufacture and application of the non-crack, non-chip coating from which it derives its wonderful rust-resisting qualities is a secret process, the exclusive property of this company.

But to be sure of PEARL-Wear you must get genuine PEARL Wire Cloth with two Copper Wires in the Selvage and the Round Tag bearing the Gilbert & Bennett name on each roll.

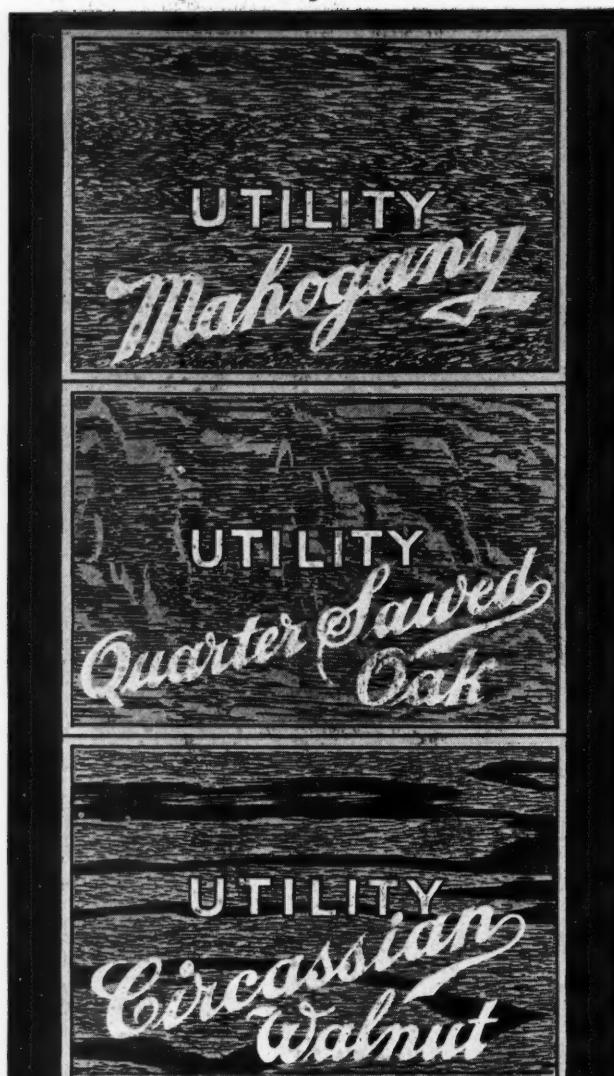
Write our nearest office for samples of both Regular and Extra Heavy PEARL, full details regarding same, and the name of nearest dealer.

*Conscientious Carpenters, Contractors
and Architects recommend and use
Gilbert & Bennett PEARL Wire Cloth.*

The Gilbert & Bennett Mfg. Co.
(ESTABLISHED 1818)

Dept. R 277 Broadway - New York
Dept. R 38 S. Dearborn St., - Chicago
Georgetown, Conn.
Kansas City, Mo.





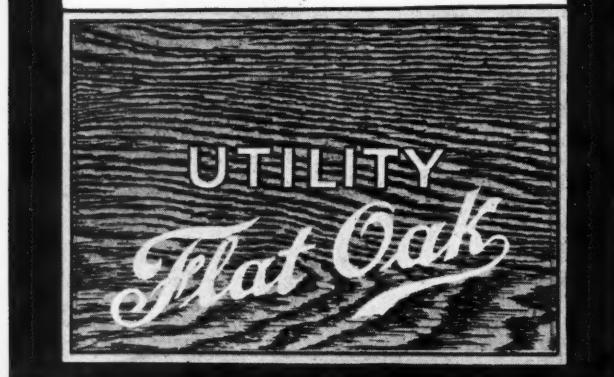
Your Sample Panels of the new
grained Utility Board are ready.
Send for these today. Grained,
not stained—the samples will
show you the difference. ✓

Write for them now

THE HEPPES COMPANY

“Giant” Flex-A-Tile Shingles No-Tar Asphalt Paint
Standard Flex-A-Tile Shingles Rubbertex Roll Roofing

4503 Fillmore St. Chicago



goes on every roll of roofing that leaves their factory. It is put there as a seal of approval—as a sign that the contents of the package are first-class in every particular. The "Vulcanite" trade-mark serves both as a means of identification and gives assurance to the buyer that he is getting what he pays for. It is an assurance of a long-wearing roof—it is a sign that satisfaction is guaranteed. There are cheaper roofings manufactured, but when you take into consideration the fact—first, of quality, and second of price, you will find "Vulcanite" far cheaper.

Vulcanite asphalt shingles are one of the best roofing materials that we know of. They last long, are a splendid fire resistant, and do not crack or break. When these shingles are once on the roof you can forget all your roofing troubles.

The Patent Vulcanite Roofing Company are desirous of interesting a responsible roofing contractor to handle and sell "Vulcanite" roofing in every locality where they are not already represented. This means that those of our readers who desire, can earn two profits; first—one from the sale of the roofing, and second—a profit on the work of installation. The man who handles "Vulcanite" roofing has another distinct advantage. It gives him prestige, inasmuch as "Vulcanite" is a nationally known product, is nationally advertised, and is a product for which a demand is already created. "Vulcanite" comes in red, green and brown colors. It is "quality" roofing throughout, and every roof installed is an artistic and durable advertisement for the man who is responsible for it.

The Patent Vulcanite Roofing Company, 2256 W. 49th St., Chicago, Ill., will be glad to hear from responsible men who are in a position to increase "Vulcanite" sales in every community. Other offices of this company are as follows: Birmingham, Ala.; Cincinnati, Ohio; San Francisco, Cal.; Kansas City, Mo.; New York City, N. Y.

Employees of Heating Company to Benefit

The XXth Century Heating & Ventilating Company of Akron, Ohio, have adopted the profit sharing plan for their employees, to take effect the first of July. About 175 men will be benefited by the new policy of this well known firm.

Mr. John Kerch, the president of the company says that they are merely applying the "Golden Rule" to their business. He adds that he believes the policy will have a marked effect on the attitude of the men toward the business. The manager generally spends more time and brains on the welfare of the company because of the fact that he has the added stimulus of extra profits and is thus directly interested in the firm prospering. If the men are given this advantage too, there is every reason to believe that they will take the interests of the firm to heart also.

He also says that it is the intention of the company to pay top-notch wages because they believe it is poor economy to pay poor wages. If workmen are not paid enough, they are sure to have no good will toward the company and their capacity for work is diminished. Efficiency and good will are the two attributes of the workmen that are necessary for the real success of a company and they are the things that the firm expects to pay a reward for in the shape of a bonus.

In further statements, Mr. Kerch speaks of the attitude he believes a firm should take in considering the welfare of their employes. Workmen should be given the opportunity of producing enough so that they can keep their families in comfort and educate their children. Well paid men are able to do this and thus become useful parts of the community; the government; and incidentally, the factory.



Fiberlic

Wood-Grain Panels

Overcome the Cost of Wood

Every contractor and builder can now recommend decorative grained panels for interiors with absolute confidence, for the use of Fiberlic not only effects a big saving in this class of work, but it is also the equal of the real grained wood in appearance, strength, rigidity and endurance. Write for samples and prices; you will be surprised; you will see the great, new field that Fiberlic opens up for you; you will see at a glance the profit there is in handling this new product.

Fiberlic is not a "Wall Board"

Fiberlic grains are right in the wood, not merely printed on the surface or printed paper mounted on boards, as in the case of "wall boards." Fiberlic grains are in the wood—faithfully reproduced from the real wood by an exclusive process. There is no limit to the color effects that can be worked out with Fiberlic—another advantage over "wall boards." See the samples, they are most convincing.

Fiberlic Also Comes Plain For Walls and Ceilings

There is no loss in handling Fiberlic as there is in sand, lime and laths. There is no comparison between Fiberlic and "wall boards." Fiberlic is made from long, imported root fibers, well known for their remarkable toughness, strength, and insulating qualities.

Write at once for Samples, Prices and Specifications

THE FIBERLIC COMPANY, Camden, N. J.
140 Washington St., North, Boston, Mass.

FIBERLIC
Wood-Grain
Panels for
Dining Rooms
Living Rooms
Halls
Stairways
Dens
Bungalows
Partitions
Store Windows
etc., etc.

Parquetry Flooring

WHAT IT IS: HOW IT IS MADE: AND HOW TO LAY IT

By Lawrence Ottinger

President of the Federal Parquetry Manufacturing Co.
Offices, 175 5th Ave., New York; Mills, Lexington, Ky.

THAT a floor is a most important part of a building is obviously true. That the beauty of a room depends to a great measure upon the beauty of its floor, is likewise a self-evident fact, for when one enters a room, one's first act, whether conscious or unconscious, is to look at the floor upon which one is walking.

The ideal floor is one which combines with beauty—variety, durability, economy and cleanliness. That parquet flooring combines these qualities has been the opinion of Europeans for hundreds of years, and it is an actual fact that practically no flooring other than parquetry or herringbone is laid in any of the European countries, and this statement is a fact to which there are practically no exceptions. The leading architects of the East and all the large centers use it exclusively in high-class buildings.

This flooring is usually made in three thicknesses— $1\frac{3}{16}$, $\frac{7}{16}$ and $\frac{5}{16}$ inch. The first two thicknesses are tongued and grooved and are blind nailed. The $\frac{5}{16}$ -inch must be nailed through the top, the nails being hidden with putty colored to match the wood.

The flooring is made in squares of various sizes and in herringbone strips of various widths and lengths. The squares are formed with two or more pieces of flooring so cut to length and end matched that the length and width are equal, and these squares are of various sizes, so that the small ones can be used for foyer halls and small rooms, in keeping with the scale of the room, and the larger ones in the proportionately larger rooms. The herring-bone strips, too, are made in various lengths and widths, so that they lend

themselves equally well to the proportions of any room.

Parquetry flooring, beside presenting a variety of designs in which it may be laid, presents an entirely different appearance from strip flooring because of the well-known fact that if one looks at a piece of oak from various angles, it assumes a different appearance from each new point of view. In parquetry, one looks along the grain of one piece, across that of another, and against that of others, the effect being most beautiful, and a distinct relief from the monotony of strips all running in one direction. Then, too, parquetry is matched for color, and the floor presents an appearance of uniformity and solidity.

The impression once obtained that parquet floors were a luxury of the rich, so far more costly than other floors that they were not to be thought of in less pretentious homes. In former years this was partially true, but modern methods of manufacture have brought the price down to run about the same as first-class strip flooring. It costs a little more to lay, but when one considers that they require no attention other than occasional dusting or cleaning with furniture polish, and that no carpets are required, this flooring is really an economy. A house with parquet floors will sell more readily than one with strip flooring.

Cleanliness, so essential to health, demands the parquet floor. No cracks or checks will appear to act as pockets for dirt and dust, for the absolute accuracy of the milling and the care in kiln drying prevent such defects from occurring. It is largely used in hospitals which cannot afford tile.

Manufacturing

There are two types of mill which manufacture parquet flooring. One is a mill which manufactures long flooring and attempts to make parquet flooring from the short pieces, and the other is a parquetry mill which manufactures short

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has made necessary the addition to our \$3,500,000 modern wall-board plant—already the largest in the world—of new buildings and machinery. Our capacity is now 450,000 sq. ft. daily.

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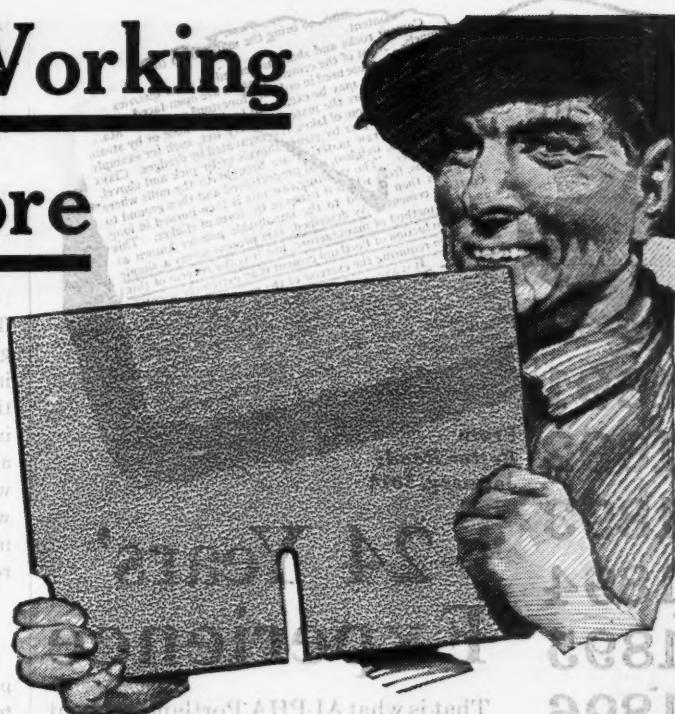
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Cornell, Wis.



15 Salesmen Working For Me and More Coming

These salesmen are my customers — property owners — whose residences I have covered with NEPONSET Shingles. They are the biggest boosters of the shingle I know. They're turning business my way every week. There is no roof so attractive as that covered with



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PATENTED

Each shingle is specially built up—the butt end being three times thicker than the top end! When laid they form seven layers. That will give you some idea of their durability. Why not get a sample and investigate for yourself?

The same materials are used in Neponset Shingles as in the well known PAROID Roofing, also used in Neponset Proslate, the highest grade colored ready roofing ever made. Neponset Wall Board, Neponset Waterproof Building Paper and Neponset Floor Covering are other well known Neponset products.

Bird & Son, Department C, East Walpole, Mass.

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January, 1914

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Send for the ALPHA Book No. 16, giving valuable information about cement and concrete work generally. This illustrated book tells how to do stucco work, how to build concrete barns, silos, ice-houses, and other small concrete buildings, walks, tanks, storage cellars, steps, etc.

ALPHA PORTLAND CEMENT COMPANY

General Offices: Easton, Pa.

SALES OFFICES: New York, Chicago, Philadelphia, Boston, Pittsburgh, Baltimore, Buffalo, Savannah.

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

pieces from lumber, especially for this purpose. It is self-evident that great accuracy in milling and particularly in end matching is required, for the slightest fraction of an inch, so often repeated, means trouble for the layer of the floor and makes an unsatisfactory piece of work. The kiln drying in this floor is one of its very most important features because if the flooring is not dry enough it will shrink after it is put down into a heated building, and if it is too dry it will swell and buckle. The right percentage of moisture is from 5 to 5½ per cent and this is determined by a simple process of weighing a piece of flooring at the mill every day, then putting it on an electric grill, which dries it out to an absolute crisp and then weighing it again. The difference in weight allows the determination of the degree of moisture which it contains. This flooring is bundled in convenient sizes for handling on the job and bound with steel straps. It is kept in steam heated warehouses and when shipped in less than carload lots, is wrapped in waterproof material, so that when it arrives it is in exactly the condition it should be for producing the best results.

How to Lay Parquetry Squares

Any man who can handle a hammer and saw can do perfect work with well made parquetry. It is quite as easy to lay as a strip flooring, but takes a little more time and uses up more nails, because it should be laid properly or not at all. The only difference in the cost between parquetry flooring and the ordinary flooring is in the cost of laying, because modern manufacturing methods have brought the price down to a point where it is about the same as strip flooring. The border for parquetry may be either a fancy border or plain oak strips of the same matching and milling. The latter are being used almost exclusively, because the fancy borders are usually a little loud and not sufficiently unobtrusive for good taste, occasionally a strip of cherry, walnut or maple is used in what is known as a line border, but this, too, detracts from the dignity of the floor.

The border is laid first and the outside strip must of course be fitted around the room exactly as in other flooring. When the border has been laid to its allotted width, it is necessary to see that there is one absolutely square corner to the room to be floored. The first square is laid in this corner and the work proceeds in both directions from this corner until the room has been complete. The width of the border should be such that the field of squares will fit evenly into the room. This is sometimes not possible and in such cases the squares are sawed off to the proper size. In the end matching of these squares they are grooved on both ends and where two grooves come together a slip tongue (shipped with the squares) is inserted, so as to fit snugly, holds the pieces tightly together. The floor, after being laid, is scraped with a hand scraper, first diagonally and then with the grain and it is then filled with a good light filler and is finished with two or three coats of wax and two coats of shellac, or one coat of shellac and one coat of wax, according to the finish desired.

How to Lay Herringbone

The laying of herringbone is not so simple as the laying of squares, for the reason that the pieces which touch the border do so at an angle, and such strips must be cut off at that angle and grooved to make a first-class job. Some of the mills furnish what are known as starting pieces, which are triangles made of pieces of herringbone, which are put against the border on any end of the room and the herringbone pieces continue from these triangles. The angle pieces are also shaped or cut, and in this case the border of only one end of the room, where the herringbone is started, is

Cut Labor Costs

And Leave a Better Looking Job By Recommending

King Aerators

and the King Sanitary Ventilating System

Why let one of your best men spend two or three days' time building wooden cupolas when a carpenter and a helper can install "King Aerators" while the crew is getting ready to leave the job?

Save that needless labor expense. It never shows its value in the eyes of the owner. Instead, recommend King Aerators and a King Ventilating system for every barn you build. You will please the owner, too. His building will be kept in a more sanitary condition—dry—free from foul air—stock live better—owner makes

more profits—speaks a better word for you.

Prevent Spontaneous Combustion

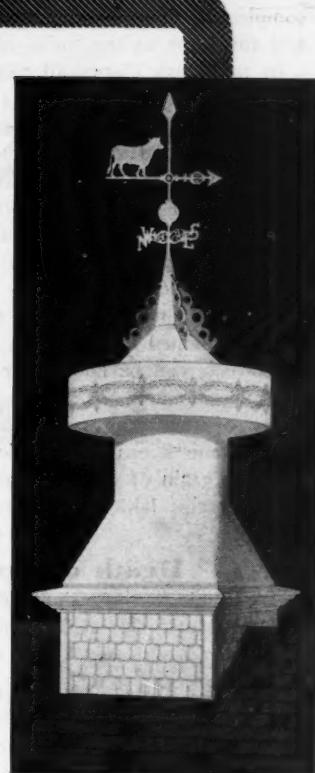
Lack of ventilation in the haymow has caused a large percentage of the fires in farm barns. Hay gets overheated—easily ignites—attracts lightning during thunderstorms. Efficient ventilation is the farmer's best protection against this trouble. Tell him about the King equipment.

Catalog mailed free on request.

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Formerly
Galvanized Steel Cupola Co.



Our catalog will be a great help in showing your customers the beauty in architecture and efficiency of King Aerators. Let us send you a copy FREE



laid first, and the other borders are laid after the field is completed. The finish, of course, is according to desire and the same as the finish of the squares.

In parquetry plants all the grades of this stock are well manufactured and the grades vary because of the defects to which lumber is heir; whereas knots or very serious defects are not included in any of the grades, satisfactory work can be done with all of them. Where a dark finish is desired a grade known as Select A will answer quite as well as the clear because its main defects are sap and slight discolorations, which, of course, are made unnoticeable by the use of a dark filler.

The above matter gives a rough idea of the effects which can be obtained in parquetry. Squares can be laid diagonally or oblongs can be laid either straight or diagonally and the use of quartered oak lends, of course, an added beauty. Many of the large restaurants and hotels have put down herringbone floors for dancing, as the feet naturally travel with the grain of the wood and never across, as must be the case in strips laid the length of the room.

Death of Louis A. Sayre

Mr. Louis A. Sayre, of the firm of L. A. Sayre and Son, died on March 23, at Newark, New Jersey.

Robt. F. Hall, who Succeeds J. P. Beck
as Publicity Manager of the Universal
Portland Cement Co.

Robt. F. Hall New Universal Ad. Manager

Robt. F. Hall, who succeeds J. P. Beck as Publicity Manager of the Universal Portland Cement Co., has spent the last six years in the sales department of that company. He is well known throughout the cement industry because of his activities in its association. Mr. Hall is a graduate of the University of Michigan, where he completed the Academic course in 1894 and the law in 1895. He is a resident of

Chicago, having begun the practice of law there on leaving college, in the office of A. W. Green, now president of the National Biscuit Company. He held an important position with that company before going into the cement business with the Universal. He is a member of the University Club of Chicago, the Saddle and Cycle Club, the Military Order of the Loyal Legion of the United States, The Western Society of Engineers, The Advertising Association of Chicago, and several other local organizations. His experience and education equip him well for the work he has now undertaken.

Twin Houses
—Till One Was Overcoated

Every time you take an overcoating job there are two things that you consider. "How can I make it attractive and permanent?" and "How can I make a profit?"

Kno-Fur
Expanded Metal Lath
Used Without Furring or Sheathing

solves both problems because it has the famous "Kno-Burn" plaster gripping mesh; is braced with a "U" shaped diagonal

rib that does away with furring strips and strengthens the fabric; is economical to you in material, labor and plaster, and is always consistent in price.

If you don't use "Kno-Fur" it's because you don't know about it. Send for booklet 33 today. It not only describes "Kno-Fur" but 46 other forms of metal lath.

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The Vast BUILDING— MATERIAL EXHIBIT

awaits you with its hundred and fifty interesting exhibitions.

Here you can see the newest methods and materials employed in building construction; you can learn of the latest modern achievements along building lines.

Many special displays that you will enjoy seeing.

A visit will prove of extreme value as well as affording you a great deal of interest.

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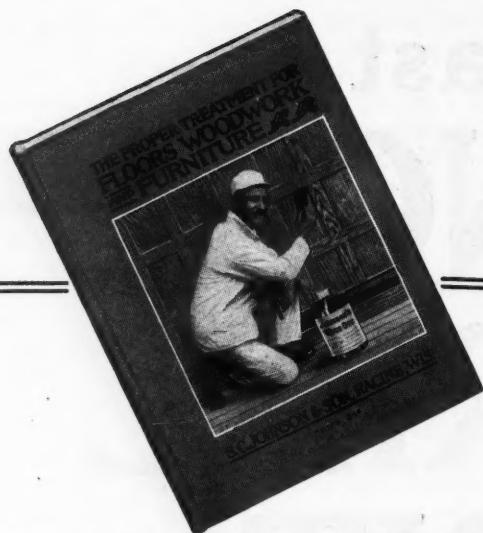
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This new book is 100% more beautiful and comprehensive than former editions—it is the work of famous experts—beautifully illustrated in nine colors. It gives complete specifications for finishing new woodwork and floors, and for refinishing old work of this character.

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You will find this book full of valuable information—use it as a hand-book on interior finishing and your specifications will never go wrong.

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is made in 17 beautiful shades for artistically coloring wood. With it your inexpensive jobs of soft wood can be finished just as attractively as hard-wood. Specify it on your next job and convince yourself.

Johnson's Wood Dye is very easy to use—it does not lap or streak—any good brush hand can apply it with perfect results. Johnson's Wood Dye penetrates deeply into the wood without raising the grain—is economical and permanent.

If you are not familiar with Johnson's Wood Dye we shall be glad to furnish you with good size samples for experimental purposes.

Use the coupon for your book.

Please send free and postpaid my copy of your new 25c Instruction Book, "The Proper Treatment for Floors, Wood-work and Furniture."

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The Meadows Inside Stationary Cup Elevator

Modern farmers are probably the most progressive class in this country today, and the contractor who expects to handle their work must keep up with them. A few years ago the modern sanitary dairy barn, with all its equipment, was a new thing, yet coming into demand by many farmers all over this country. The advertising pages of the AMERICAN CARPENTER AND BUILDER have presented much valuable data on barn equipment and we hope that none of our family of builders lost any choice contracts because they did not understand the many problems connected with dairy barns.

And now the high corn crib and granary with the necessary machinery for handling the corn easily—in a labor saving way—is the new

farm building problem for builders. If you do not understand grain bins and their equipment, you are going to lose some mighty good contracts and your reputation as an up-to-the-minute builder is going to suffer.



Send for Large Reproduction of This Crib View, which Shows All Details Clearly.

The Meadows

Manufacturing Co., Pontiac, Illinois, have recently issued a corn crib plan book which also describes their well known line of portable and stationary grain elevators. This book is very well illustrated and shows installations of their machinery in grain bins of various styles. It also describes their machinery and shows its many good features.

Their inside stationary cup elevator has many desirable features. It is always inside, in the dry, and will thus outlast the portable type which is exposed to the weather. The advantage of having all the grain in one building, to provide ease of handling, is, of course, obvious. It is what the best farmers want. The description of this elevator and also the other types is complete in their new catalog No. 3F.

If a farmer does not feel that he can afford to buy a stationary elevator, the contractor should know how to construct a corn crib and grain bin so as to provide for the portable type of elevator, with the least amount of trouble. If you understand grain elevators of all kinds you will be able to advise the man who wishes to build as to the sort of a building he will need. That means contracts for you and consequently more money in the bank.

Write to the Meadows Manufacturing Co., Pontiac, Illinois, and get their new catalog No. 3F. They will be more than glad to furnish you plans and information regarding cribs, grain bins, and elevating machinery.

Chicago Builders' Specialties Co. Have New Home

The Chicago Builders' Specialties Co. have changed their location from the Old Colony Bldg. to larger and better quarters in Room 1411, Lumber Exchange Bldg., Chicago, Ill. They have requested us to extend an invitation to their many friends to visit them in their new offices. The Lumber Exchange Bldg. is one of the new office buildings just completed in Chicago.

An interesting booklet, describing this concern's line of builders' equipment, has recently been issued by them and may be had for the asking.

1872

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Modern Hardware

Adds the Finishing Touch to the Building

We carry all the latest and newest ideas in Building Hardware. Hardware that adds much to your buildings and helps build up your reputation as a progressive, up-with-the-times builder. But our Prices are very reasonable, much lower than you pay for inferior goods.

We want to Figure with you on your next Building

Give us a chance to demonstrate what we can do for you. Our enormous buying power and central location enable us to quote you the most attractive price on anything you can possibly need in Hardware. A Trial Order is all we ask.

We are Headquarters for all the Leading Standard Tools

Our prices will surprise you, but when you consider the enormous quantity we buy you can understand why we can give you such low prices. Our stock is the most complete in the world. Write us your needs.

You can Depend on Orr & Lockett Service

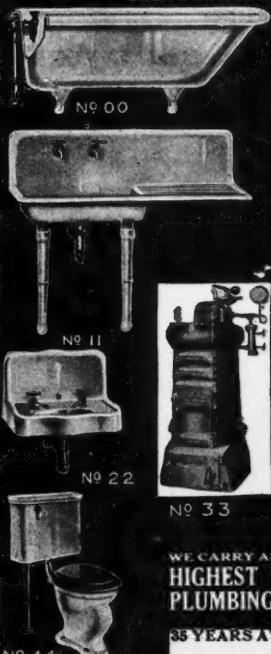
We ship your order the day it is received and if it is for building hardware, we label articles according to specifications, saving time and trouble. Send us your next specifications and let us bid on them.

Orr & Lockett Hardware Company
14-16 W. Randolph St., Chicago, Ill.

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HONEST VALUES

1/3 SAVED BUY DIRECT FROM MANUFACTURER
J. HARDIN CO. - - Chicago
OUR HIGHEST GRADE LABEL APPEARS ON ALL FIXTURES
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THE BESSLER MOVABLE STAIRWAY



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Ready to Use

This illustrates the Bessler Stairway after it has been brought into position for use. Easy—a child can operate it.

A device designed to replace the present stationary stairway leading to attics and lofts and which take up too much floor space in room below. Simple in construction—easy to operate and thoroughly practical.

Architects Recommend The Bessler Movable Stairway

Prominent architects throughout the country unhesitatingly endorse the Bessler Stairway and never fail to specify them whenever possible.

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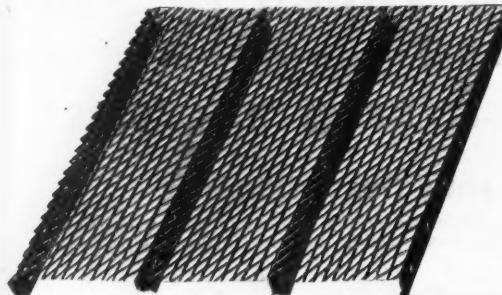
The Bessler
Movable
Stairway Co.
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Stairway Folded.

A New Type of Reinforced Metal Lath

On a great many classes of work a special form of metal lath combining a furring or reinforcing with the mesh is found to be of great advantage. Such a material is particularly adapted for use in solid plaster partitions and for lathing suspended ceilings. A combined lath and reinforcing is also of material advantage as a form and reinforcing in the construction of concrete roofs and floors.



"Chanelath," a New Northwestern Expanded Metal Co. Product.

The material shown in the illustration has just been put on the market to supply the demand for the class of metal lath outlined in the preceding paragraph.

The reinforcing or furring members of "Chanelath" consist of T-shaped ribs spaced 4 inches apart and connected by a small mesh lath. The ribs are solid and the mesh extends in an unbroken surface across the entire sheet. This insures a perfect key when the "Chanelath" is to be covered with plaster.

The T-shaped ribs are very efficient when the "Chanelath" is used as a reinforcing for concrete because of their shape. Everyone familiar with reinforced concrete design knows that a twisted or deformed reinforcing member is much more efficient than one that is perfectly smooth.

This new product is being marketed by the North Western Expanded Metal Company, 903 Old Colony Bldg., Chicago, Ill., and is furnished in sheets of any width that is a multiple of 4 inches up to and including 4 feet. The lengths are 6, 8, 9, 10 and 12 feet. Full information will be sent on request to the above company.



Combination Woodworker a Valuable Machine

The Hutchinson Woodworker Co., Ltd., of Toronto, Ontario, have published a very interesting catalog describing their portable combination woodworker. This little book, aside from its advertising value, makes very interesting reading. It describes the various uses of this very interesting machine, and shows some excellent illustrations of the machine in action with some of its various attachments.

The manufacturers claim several distinctive features for it. It can be used for general work because of the fact that it can be moved very readily from place to place, that it has the power to do any of the work on a building and that it operates on the electric power from an ordinary lighting circuit. Its simplicity is also another feature and the manufacturers say that with ordinary care it will give remarkable service. The ease of changing from one tool to another is another feature. One minute is sufficient to change from one tool to another.

When the saw is being used, it will cut at any angle, your work is directly in front of you, and the table is clear of all obstructions. The saw can be raised or lowered eight inches and this action has no effect upon the belt.

The Hutchinson Woodworker Co., Ltd., 99 Sherburne St., Toronto, Ontario, will be glad to send the catalog of this machine to any of our readers on request. It will be very valuable to any contractor.



Promotes sanitary conditions. Encourages the growth of flowers and vegetation.

Every **Globe Fence** you erect will lead to other orders from neighboring owners. It recommends itself on sight.

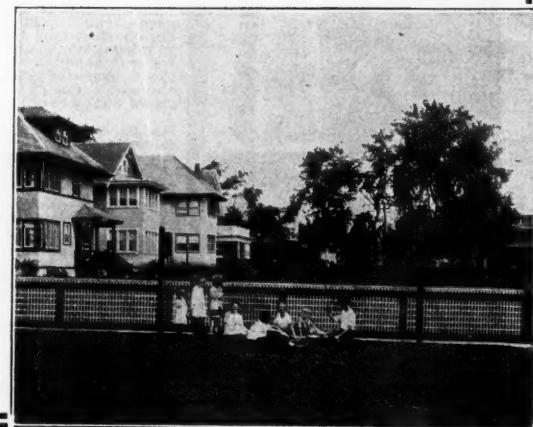
Let us send you catalog and special discounts to carpenters and contractors.

You Can Make More Money

Globe Fencing is Profitable for you and will appeal to your customers.

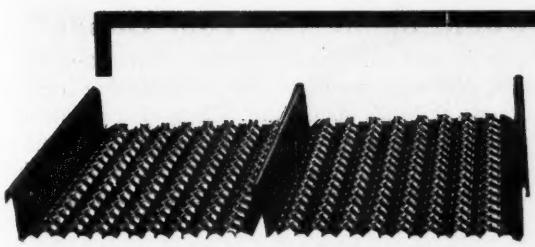
Easy to erect. Can be mounted on any style of post and uneven ground. We have many combinations of materials suitable for front, rear or division fencing — all of A1 materials.

Globe Fencing makes attractive appearing yards. Lets in the sun and permits a freer circulation of air.



Globe Fence Company, (Un-Inc.)

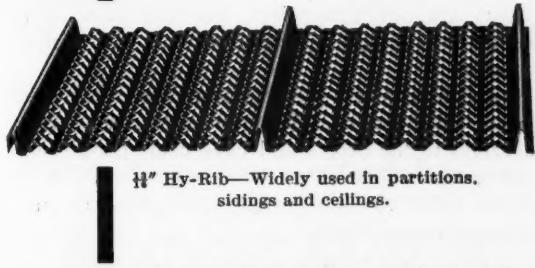
20-22nd St., North Chicago, Ill.



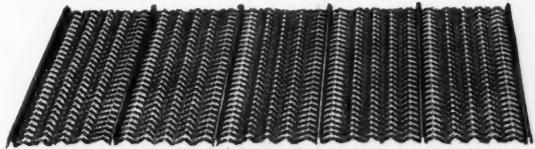
1 1/2" Hy-Rib—Very Rigid—For heavy loads and wide spans.



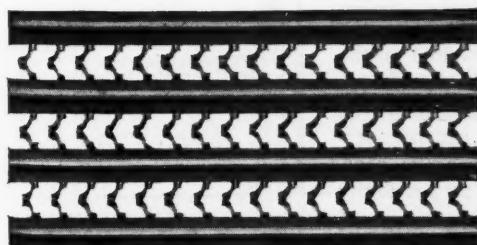
1 1/4" Hy-Rib for floors and roofs without forms—Sidings, partitions and ceilings without channels.



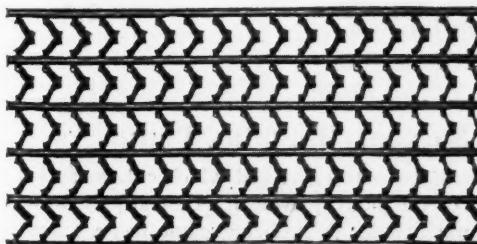
1 1/8" Hy-Rib—Widely used in partitions, sidings and ceilings.



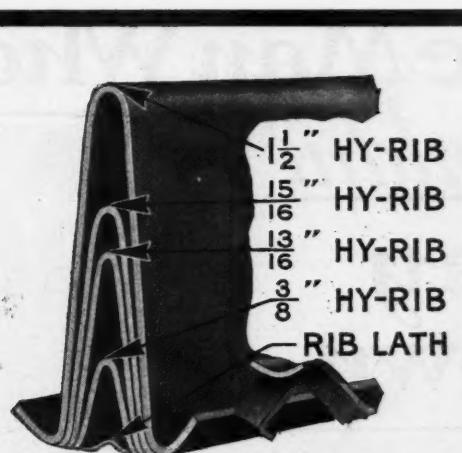
3/8" Hy-Rib used as a self-furring lath and in partitions, ceilings, etc., for stud spacings 24 to 36 inches.



Beaded Plate Rib Lath—Permits two-coat work instead of three.



Standard Rib Lath in 3 Gauges—also "B" Rib Lath, similar in design.



It's the strength of the ribs that counts.

A Complete Line of Perfect Products for Concrete, Stucco and Plaster

When you build you want to use the best products and secure the most economical results. Our complete line is the result of years of experience and development, and includes a special product to exactly meet all requirements of construction—each product amply strong but not an ounce of material wasted.

Hy-Rib, Rib Lath, Steel Studs, Etc.

HY-RIB is a deep-ribbed steel sheathing combining in a single sheet, forms, reinforcement, lath and channels. Manufactured in four types from 1 1/2" to 3/8" and each of these in various gauges. Hy-Rib eliminates forms in concrete floors and roofs and eliminates channels in partitions, sidings and ceilings. 3/8" **Hy-Rib** is widely used in connection with Kahn Pressed Steel Channels permitting spacings of from 24 to 36 inches and providing most economical construction for partitions and ceilings.

RIB-LATH is the stiffest steel lath and in the heavier grades permits two-coat plaster work instead of three—saving in time, labor and materials—also allows wide stud spacing. Rib-Lath is manufactured in three types and various gauges.

DETROIT DIAMOND LATH—A diamond mesh lath furnished in various gauges and plain, painted or galvanized.

STEEL STUDS—Made of pressed steel in various sizes from 1/4" to 2"—Very true and rigid—Also Kahn Pressed Steel Hollow Studs for hollow walls and partitions.

We also furnish Steel Corner Beads of various types, as well as Metal Base Screeds, etc.—No matter what your requirements in reinforcement for concrete, plaster or stucco work, we can fill your needs and save you money. Secure our estimates. Catalog free.



Kahn Pressed Steel Channels—Also Hollow Studs.



Trussed Concrete Steel Co.
Reinforcement, Metal Lath, Steel Sash, Armor Plates, Waterproofings, Specialties

Representatives in Principal Cities

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YOUNGSTOWN, OHIO

The Man Who Wouldn't Stay Down



Hard work and low pay are for the man who *thinks* he "hasn't a chance." But the ambitious man trains himself for a better job—and gets it.

Only a few years ago the man whose rise we picture here was working 12 hours a day for 7 days a week. But he made up his mind to train himself for something better. He marked and mailed just such a coupon as you see below. He studied at home. His earnings increased. He was made foreman. And now he is a successful Architect with an income of several thousand dollars a year.

This man had no advantages that *you* don't have. His education was poor. His spare time was limited. But with the help of the I.C.S. he has "made good." *YOU can do the same* in your line of work. If you can read and write the I.C.S. can help you.

Mark and mail attached coupon. It won't obligate—and the I.C.S. will show you how you can rise to a high-salaried position through their simple and easy system of home instruction.

Mark the Coupon NOW

International Correspondence Schools

Box 910X, SCRANTON, PA.

Please explain, without further obligation on my part, how I can qualify for a larger salary and advancement to the position, trade, or profession before which I have marked X.

Architect	Estimating Clerk	Automobile Runn'g Foreman Machinist
Arch'l Draftsman	Civil Engineer	Sh.-Met. Pat. Drafts.
Contract'g & Build.	Surveying	Textile Manufact'g
Building Inspector	Mining Engineering	Bookkeeper
Structural Eng.	Mechanical Eng.	Stenographer
Structural Draftsman	Mechanical Drafts'n	Advertising Man
Plum. & Heat. Con.	Stationary Eng.	Window Trimming
Supt. of Plumbing	Electrical Engineer	Commercial'g Illustrat'g
Foreman Steam Fit.	Electric Lighting	Civ. Service Exams.
Plumbing Inspector	Electric Railways	Chemist
Heat. & Vent. Eng.	Concrete Const'r'n	

Name _____
 St. and No. _____
 City _____ State _____
 Present Occupation. _____

"We Would Rather Use Your Goods"

Dealers in doors and millwork, as well as contractors, must do business at the happy medium stage, emphasizing quality first. They must skillfully avoid the "Cheap John" sale on one side and the "Highbinder" on the other side. They must sell on quality and service, without cheapening themselves by a no-profit price, or robbing their customers by holdup methods.

In a large number of lines of business there has been a steady and sure change in methods of selling. Formerly price was the whole thing. Today quality comes in for most consideration. The most substantial and successful merchants in any town today are those who sell their wares from a quality standpoint first.

These principles are most important in the selling of doors and millwork. Morgan doors have good quality built into them, and if anything can be sold on quality talk, Morgan doors can. They are known throughout the country as beautifully finished doors, and when properly stained, or finished, the carefully selected grain increases in beauty as the years pass by.

Morgan doors are not high priced, but they back up by actual performance every quality argument that you wish to make to the buyer.

During the past forty years Morgan doors have been made the standard of door quality. They are advertised in the national magazines to the people and have made good everywhere. Builders can add much to their reputation for using quality goods by lining up with Morgan and getting in touch with their sales promotion work.



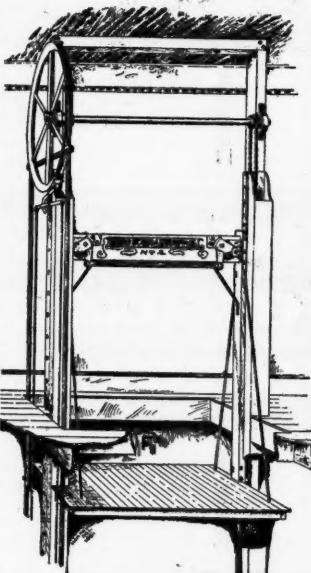
Gearless Elevator

The Kimball Bros. Co., Council Bluffs, Ia., have a line of hand power passenger and freight elevators that possess several individual features.

The lift chains are a special steel-leaf chain which goes over small wheels. There are no gears, as the rope wheel is mounted on the same shaft as the lift wheel. The brake is an improved shoe brake that can be operated with either brake rope, and eliminates the possibility of accident due to the use of the wrong brake rope.

A safety catch is operated by means of either lifting chain in case of failure of the other chain.

Put your elevator problems up to the Kimball Bros. Co., Council Bluffs, Iowa.



No. 2—Front View



New Sargent Matching Plane

"A tonguing plane has a recessed bed which cuts away two strips at the sides of the plank, leaving the central part, which forms a tongue, untouched. A grooving plane has a narrow bed which forms a channel in the wood. The stocks of both have a ledge projecting below the sole which serves to determine the distance of the tongue or the groove from the edge of the board."—*Knight's Mechanical Dictionary*.

Until recent years it was necessary for carpenters to tongue the edges of boards with one plane, and groove with another.

MR. CONTRACTOR, GET SMYTH'S FIGURES!

WE SHIP LUMBER FROM YARDS AT ST. LOUIS, CAIRO, MISSISSIPPI, ARKANSAS, SEATTLE

\$63.00

\$796.91

\$588.82

\$512.00

Mr. Contractor, the next time you are figuring on a house, barn, garage or any kind of a building, send us a list of the lumber, millwork and material you will need for the job and let us give you our prices.

Our estimating service is entirely free. It is built up and maintained to serve you promptly and we will consider it a favor if you will give us a chance to show you how much we can save you on your next bill.

Our figures will surprise you and we guarantee that the lumber and materials will be first class and as good in quality and grade as you have ever had from anyone regardless of price.

It will cost you nothing, only a little of your time and a postage stamp to get our figures; if they are not right there is no harm done and we will thank you for the opportunity of giving you prices.

We will serve you promptly for our service is nation wide. It comprises five big lumber mills and yards; big millwork and other building material stocks, all located at logical points to ship promptly and get the goods to you quickly and economically.

We have what you and every building contractor wants — everything in building material, lumber, lath, shingles, flooring, millwork, colonades, cabinet work, steel roofing, roofing and building papers, hardware, plumbing, steam, hot water or hot air heating outfit, furnaces, paint, etc., all at mill prices direct to you.

We firmly believe that our special low prices will enable you to beat all competition and allow you to make a larger net profit than heretofore. Try us with your next bill and find out.

TWO BIG SPECIAL CATALOGS

Millwork—Building Material

We publish a big 112-page special catalog of millwork and building material which illustrates, describes and quotes competitive defying prices on complete lines of all kinds of millwork. Send for it today. It will land you more jobs and make bigger net profits for you than any book you ever saw.

Read About This CHICAGO CONTRACTOR

In one of the suburbs of Chicago we have supplied one contractor with lumber and material for over fifty bungalows and houses. Mind you this man has the whole Chicago market at his command but given us the preference because he saves big money on lumber and material by buying it. He is a cash buyer, knows values and trades here because it pays him to do so. We are supplying contractors in all parts of the United States with building plans, lumber and material because they find us the best in the business. It will pay you big to let us estimate your bills and get our special catalog for reference and consultation.

Ready Roofing 59c for 108 Square Feet

STEEL ROOFING \$1.69 for 100 Square Feet

Our prices for ready roofing, metal roofing and all goods of this nature are the lowest and our guarantees the longest and most liberal. Write for our free Special Roofing Catalog and see. Don't buy before you get our prices. We have headquarters for Wall Board and ornamental steel ceiling. Prices for everything.

WHITE PINE
Front \$8.85
Door
A. cedar: 2-3 x 6-13-4 in. thick; 20x56 in. Pine glass: 2 in. level.

LARGE SIDEBOARD \$1750
4 1-2x7 ft. all clear yellow pine; with leaves, cupboard, counter, shelves, etc. chime case, glass in doors, beaded ceiling back.

4 PANEL Interior 99c
Doors up
See full line in our special millwork catalog.

WE GUARANTEE OUR PAINT 5 YEARS

Write for FREE Book of 125 Sample Colors. If you need paint or varnish for any purpose whatever, before you buy, send us and say, "Send me your special paint color sample book" and that shows you over 100 SAMPLE COLORS of Smyth's 5 yr. guaranteed paint and varnish for every purpose. No better paint money can be had for the asking. Metal, covers 250 sq. ft. with 2 coats. Prices lowest; house paint 89c a gal. barn paint 56c a gal., floor paint 99c a gallon.

BATH ROOM OUTFIT \$36.40

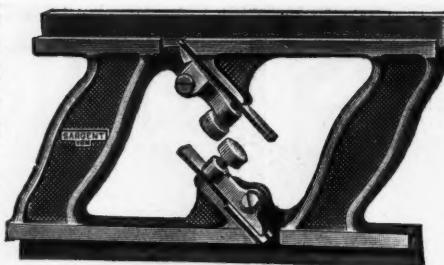
This price includes a heavy coated white enameled bath tub 5 ft. long, 30 in. wide with a 3 in. roll rim, ornamental legs; heavily coated white porcelain enameled 18x21 in. lavatory, low down pattern siphonic action closet complete with tank and accessories necessary to install it ready for use. Full details about this outfit will be found in the catalog which we will send to you upon request. It will be a great time-saver to have it in the book and have it on hand to refer to as occasion may demand.

SEND YOUR MAIL TO JOHN M. SMYTH MDSE. CO., 150 to 187 W. Madison Street CHICAGO, ILL.

Both of these planes were made of wood. Several patterns of combined tonguing and grooving, or matching planes, have recently been manufactured. Each of these will cut a tongue in one board to fit into the groove on another. The latest and most improved of these is the Sargent Nos. 1066-1067-1068 type. These are iron matching planes, so designed that by using one side they cut the tongue, and by turning over they cut the groove. Their design is such that they are light and compact with no waste metal. Being flat, they are convenient for a carpenter's box or in the drawer of his bench. They are nickel plated.

The ledge or guide on the Sargent matching plane is 3/16 inch wide. No. 1066 will cut an $\frac{1}{8}$ -inch tongue and groove on boards from $\frac{3}{8}$ to $\frac{1}{2}$ inch. The tonguing cutter is not wide enough for thicker boards than this. To make the tongue and groove central, the boards should be $\frac{3}{8}$ inch. No. 1067 has $\frac{1}{8}$ -inch cutters, and is designed for a $\frac{5}{8}$ -inch board, although it may be used on boards from $\frac{1}{2}$ to $\frac{3}{4}$ inch. No. 1068 has a $\frac{1}{4}$ -inch cutter, and is designed for a $\frac{7}{8}$ -inch board, but may be used on boards from $\frac{3}{4}$ to 1 inch.

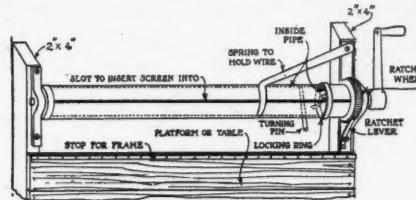
These new matching planes will make an instant appeal to the mechanic, who will fully appreciate their advantages. Write the company at New Haven, Conn., for further particulars.



New Sargent Matching Plane.

The Schilly Screen Stretcher

This is the screening season. Don't be satisfied this year with a toggled up "home made" rig. There is a screen stretcher manufactured and offered to our readers at a reasonable figure that is claimed to be a big improvement over any device or rig heretofore employed. This mighty useful and convenient arrangement has recently been placed on the market by the M. L. Schilly Manufacturing Company of Pierron, Ill. It is designed to stretch the screen in the frame and,

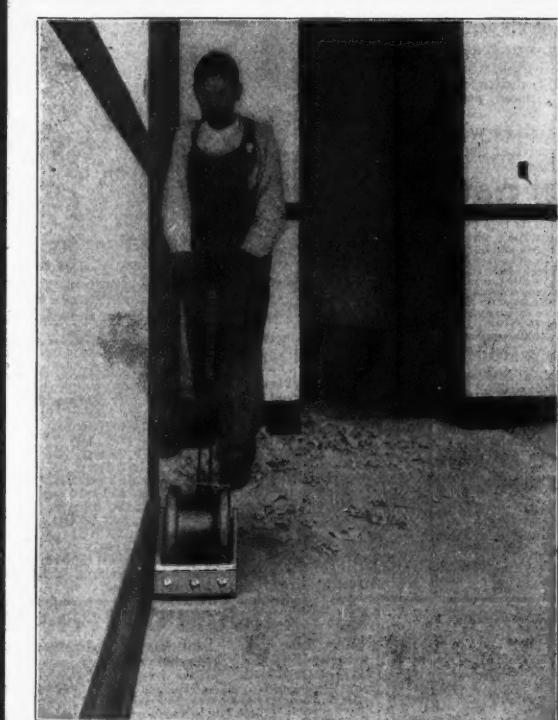


Schilly Stretcher, a Great Help in Making up Screens.

according to the manufacturers, will eliminate all sag in the screen.

As shown in the illustration, the device consists of a slotted roller, operated by a crank, and having a ratchet wheel at one end. A ratchet lever acts against this wheel to keep the roller from turning when the screen is tight. To operate, the frame is butted against a stop; the screen is tacked to one end of the frame; and the other end of the screen is inserted in the slot in the roller. The roller is then turned until the screen is tight and the ratchet holds it in place until it is tacked to the frame.

This stretcher certainly looks as though it would be worth having and we would advise our readers to drop a line to the M. L. Schilly Manufacturing Co., Pierron, Ill., asking for the descriptive circular on this device.



The New Way-Along the Baseboard

Finish a Floor without paying a cent

No matter how you are doing it now, try a "Little Giant" on one of your jobs—it won't cost you a copper. Neither will it obligate you in any way.

We want you to try it out, to demonstrate it to yourself; we are not going to tell you about its many popular improvements and features here, but will leave it entirely up to you.

You can tell and will know whether it will save and earn money for you, so no matter how much floor finishing you do, much or little, let us send it on 10 days' Free Trial.

The "Little Giant"

scraps every inch of floor, and does it right, far better than laborious hand-scraping. No motive power required. Operator simply pulls the machine to scrape. It scrapes and finishes all kinds of wood, Oak, Maple, Birch, Beech, Yellow Pine and Parquet Floorings.

The "Little Giant" scrapes every inch of any floor. Works around curves, into corners and along baseboards without loss of time or extra effort.

To the 30,000 Users of Little Giants

We have a complete stock of knives and other accessories of this machine always on hand.

Send for a "Little Giant" now to try on a job. Or, if you have no floor scraping right now, send for full particulars. Address—



Operator Pulls Machine to Scrape Floors

THE HURLEY MACHINE COMPANY
21-39 So. Clinton St., Chicago

147 W. 42nd St., New York

\$1⁰⁰ For Your Dealer's Name

To every man sending in the name and address of his local dealer we will give him credit for \$1.00 on this \$2.00.

IDEAL THREE-IN-ONE

Rafter, Try and Mitre Square

The regular price of this time-saving square is \$2.00 (the dealer will sell them at that price), but if you will do this little favor for us we will send it to you for \$1.00, postage paid. This does not pay our manufacturing and shipping costs, but this will help us secure the best distribution over the whole country.

This Movable Bar

shifts, giving you all desired angles for Rafter Work, Mitre Work, Many-sided Figure Work, Bay Windows, Interior Work, etc. Simply spring pin into desired hold and tighten thumb screw. Bar is shifted by springing from one hole to another in every scale. Pin loosened only to change scales.

Do Your Brother Builders a Service

By sending us your dealer's name, you will enable your Fellow-Builders to secure these wonderful tools that make any man master of all rafter and framing problems.

THE IDEAL

enables any man to accurately lay-out any style rafter or make any mitre cut.

It takes years of practice by the steel square method to lay out rafters such as Common, Hip, Valley Jack or Cripples. Here it is all laid down in scales that any man can understand. Simply shift the movable bar into the hole showing the number of inches rise to the foot and mark it off. The different rafter scales are marked on the square (see illustration).

With the Ideal you can cut 3, 4, 5, 6, 8, 10, 12 or 24 equal-sided figures and cut 81 different angles, making it splendid for bay windows or mitre work. It is absolutely accurate and dependable. Made of the finest tool steel, carefully finished and fits in the tool box nicely.

IDEAL TOOL WORKS, Middletown, N.Y.

Special Half-Price Offer

Fill out this coupon, giving dealer's name and address in space marked, pin a dollar bill to coupon and mail.

Ideal Tool Works, Middletown, N. Y.

Gentlemen — I wish to take advantage of your special half-price offer and am enclosing \$1.00, for which I am to receive, prepaid, your regular \$2.00 Ideal Try, Rafter and Mitre Square.

Name.....

Address.....

Town.....

State.....

Dealer's Name.....

Address.....

Town.....

State.....

IDEAL TOOL WORKS
MIDDLETOWN, N.Y.U.S.A.

FREE
Instruction
Booklet sent
with each Tool

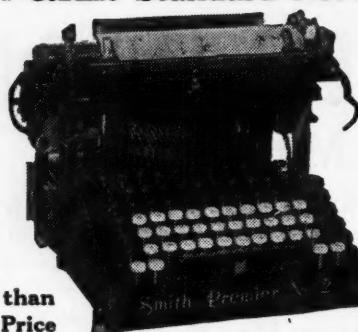
TRY
IDEAL RAFTER SQUARE
MITRE

Typewriter Sensation

\$2
Dollars a Month
Buys a Genuine Standard No. 2

**Smith
Premier
Typewriter**

and at \$71.20 less than
the Manufacturer's Price



Never before has anything like this been attempted. Dealers get \$3.00 a month rent for this make of machine, not nearly as perfect as the one we will send you, and you pay only TWO DOLLARS A MONTH AND OWN IT.

A-Guaranteed-Typewriter-\$28.80

I have sold nearly 1,200 of these beautiful Smith-Premier Typewriters to Contractors and Carpenters through advertising, and each of my customers had this Typewriter on three days' trial before deciding to buy it.

High-grade machines only, complete outfit, nothing extra to buy, no strings of any kind to this offer. Just think of buying such a typewriter for \$8.80 down and \$2.00 a month. Cash price \$27.40. Thousands of people have paid \$100.00 cash for Smith-Premiers.

It's standard, by many considered the best typewriter ever built. A key for each character, so each character printed is always the same; a brush for cleaning the type built into the machine; the tilting carriage instantly throws all the writing in plain sight. Comes to you with complete operating instructions, tools, waterproof cover, practice paper, everything ready. It runs beautifully. Writes as perfect and clean cut a letter as quickly and as easily as any machine bought for \$100. It's wonderfully simple, a child can operate it with half an hour's practice and rapidly attain speed. It's strongly built and will give you years and years of honest service and complete satisfaction.

Send the Coupon and I will Ship You this Smith-Premier Typewriter

When the Typewriter arrives, deposit with the express agent \$8.80 and take the Typewriter three days and try it. If you find it to be the best Typewriter you ever saw, satisfactory in every respect, keep it and send me \$2.00 each month, until our special price of \$28.80 is paid. If you don't want to keep it, return it to the express agent, and he will give you back your \$8.80, and return the Typewriter to me. I will pay the return express charges.

You won't want to send this Machine back after you have seen it and tried it. You can't imagine the perfection of these Machines till you see one, and the price is \$71.20 less than the catalogue price, and it is guaranteed just as if you paid \$100.00.

There is no red tape. I employ no solicitors—no collectors—no chattel mortgage. It is simply understood that I retain title to the Machine until the full \$28.80 is paid. Without sending any money write me now to ship you this Typewriter for free trial.

This coupon states the terms. Fill it out and send it now, today. You can't lose, and it's the greatest economical typewriter opportunity you will ever have.

COUPON

HARRY A. SMITH,
905-231 N. Fifth Ave., CHICAGO, ILL.

Ship me a No. 2 Smith-Premier f. o. b. Chicago as described in this advertisement. I will pay you the \$20.00 balance of the SPECIAL \$28.80 purchase price, at the rate of \$2.00 per month. The title to remain in you until fully paid for. It is understood that I have three days in which to examine and try the typewriter. If I choose not to keep it I will carefully repack it and return it to the express agent. It is understood that you give the standard guarantee for one year.

Name.....
Address.....
Shipping Point.....
Amer. Carp. & Bldr., May.....

Showing of Asphalt Shingles in Wisconsin Contractor's Office Opens the Way to Four New Jobs

"What kind of a shingle is that, something new, isn't it?"

"Looks like it would stand lots of wear—it's certainly thick and tough enough—good looking, too."

These are typical of the comments that were made by visitors to a Wisconsin contractor's office after he tried the experiment of laying samples of asphalt shingles on his plan table.

This experiment was suggested to him by the Heppes Company of Chicago, who are furnishing free to contractors, carpenters and builders complete displays of their Flex-A-Tile "Giant" asphalt shingles, as well as their "Standard" Flex-A-Tiles, their Dreadnought and Flex-A-Tile roll roofing, their Utility Board in grained wood finishes and their other guaranteed asphalt products.

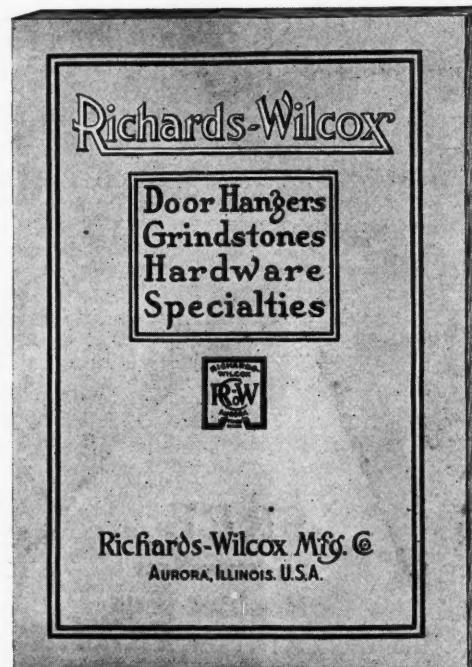
In a recent letter to the Heppes Company, this Wisconsin contractor says that his display of asphalt shingles in his office coupled with the fact that he had laid several roofs with Flex-A-Tile Giants to which he could point as visible evidence of his workmanship opened the way for four new jobs.

Readers of this magazine can get in touch with the Heppes Company by writing their factory, Fillmore Street and Kilbourne Avenue, Chicago, and secure samples for display without cost.

The rich-looking texture of the Heppes Company's Flex-A-Tile "Giant" Asphalt Shingles as well as their Utility Board in grained wood finishes—"not stained but grained"—makes new customers for contractors who feature them.

Richards-Wilcox Issue New Catalog

The Richards-Wilcox Manufacturing Co., Aurora, Ill., have a new catalog ready for distribution. This catalog is remarkably well gotten up and is one of the most complete catalogs on door hangers, grindstones, and builders' specialties that



A Valuable Catalog for Builders.

has ever been published. This book has a very pleasing appearance and will make a valuable reference book when articles of the type they make are needed. Their line needs no recommendation from us. A request to the Richards-Wilcox Manufacturing Co. will bring this mighty useful catalog to you.



Fig. 172—Type DH Hoisting Outfits. High grade single or double drum hoists. Can be furnished in practically any combination, reversible or non-reversible, single speed or double speed. Cast iron frame in sections, with heavy I beam base. All cut gears with wide face and large teeth. Bearings on gear drums and sheaves bronze bushed. Double cone or V Type wood friction to give greatest possible friction service. Wide brake bands having maximum angle of contact. Can be equipped with either nigger heads or sheaves, or one of each. Equipped with gear guards throughout. Can be furnished with 6, 8, 10, 12 or 15 H. P. Novo Engines, electric motors, or without power. Capacities with Novo Engines, 1200 to 4300 lbs. This DH Type series of hoists in its various combinations is suitable for any hoisting work up to 15 or 20 H. P.

A Hoist that meets your requirements

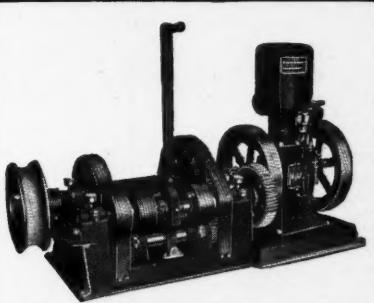


Fig. 1410—Single Drum, Single Speed, Reversible Hoisting Outfits Nos. 2 and 3, with 3 and 4 H. P. engines, mounted on cast iron base.

Capacity with 3 H. P. Engine, 600 lbs.

 " 4 900 "

A good hoist for raising material within its capacity. Suitable for double platform elevator work on medium height buildings.



Fig. 15137—Single Drum, Single Speed, Non-Reversible Hoisting Outfits Nos. 10 and 11, with 4 and 6 H. P. engine, mounted on wood skids.

Capacity with 4 H. P. Engine, 600 lbs.

 " 6 900 "

Cheap hoist for light contracting work or farmers' use.

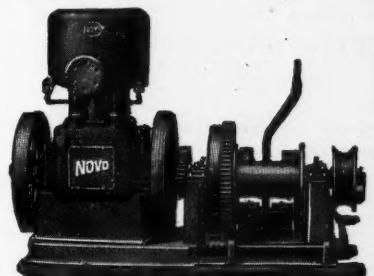


Fig. 1440—Same as Fig. 1447, but with greater capacity.

Capacity with 12 H. P. Engine, 3500 lbs.

 " 15 4350 "

No matter how peculiar the nature of your work, there is a hoist among the many Novo types and sizes that exactly fits your needs.

We have made a careful study of contractors' requirements and believe that we have supplied an outfit for every conceivable kind of work where hoisting or pumping is done.

If you are elevating material or back filling trenches by hand, a Novo hoist will replace your laborers at a big saving.

If you are using steam or electric hoists, we can show you how to make a big reduction in your operating expense, provided you require 20 H. P. or less.

If you have a hoisting job—put it up to us. We will tell you why it will pay to put Novo on your pay roll.

Our booklet, "Reliable Power," will be sent on request.

NOVO ENGINE CO.

Clarence E. Bement, Secy. and Mgr.

449 Willow Street, Lansing, Mich.

or Station A, San Jose, Cal.

Novo Engines can be furnished for operating on gasoline, kerosene, alcohol or distillate

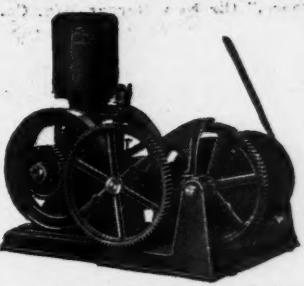


Fig. 1465—Single Drum, Single Speed, Non-Reversible Hoisting Outfits Nos. 000, 00 and 0, with 3, 4 and 6 H. P. engines, mounted on cast iron base.

Capacity with 3 H. P. Engine, 800 lbs.

 " 4 900 "

 " 6 1000 "

Suitable for light pile driving and ordinary contractors' hoisting with gravity drop.

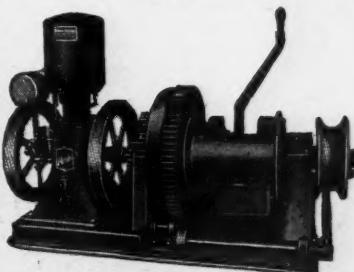


Fig. 1447—Single Drum, Single Speed, Reversible Hoisting Outfit No. 1, with 6 H. P. Engine, mounted on cast iron base.

Capacity, 1500 lbs.

Suitable for double platform elevator work and all-around general hoisting.

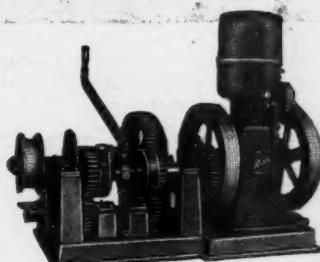


Fig. 1455—Same as Fig. 1447, but with larger capacity.

Capacity with 7.8 H. P. Engine, 2250 lbs.

 " 10 3000 "

New "Berco" Design Shingles

Encouraged by the popularity of their "Chieftain" and "Swanee" metal shingles, the Berger Mfg. Co., of Canton, Ohio, the largest sheet metal works in the world, has just put out a new shingle, the "Berco," which deserves more than passing comment.



"Berco," the New Berger Mfg. Co. Shingle.

"Berco" 10 by 14-inch shingles blend in their design the characteristic features of the Romanesque and Renaissance periods of architecture. From the Romanesque they derive strength, sturdiness, rigidity and durability, which make for long life and staunch service. To the Renaissance they are indebted for their classic beauty of design. "Berco" shingles, therefore, combine beauty with utility, and provide double satisfaction to the farsighted user.

"Berco" shingles may well be said to offer an entirely new style in metal shingle design and construction. Indications are not wanting which show that the new type seems destined to achieve national popularity as the great American design shingle. Like the other Berger shingles, the "Chieftain" and "Swanee" designs, "Berco" shingles are made with a three-

point contact lock construction and an end lap providing high corrugations at the top. This serves a twofold purpose. It facilitates application and at the same time makes the shingles automatically interlocking and self-aligning, while the knife edge at the top insures a tight joint and absolutely prevents capillary attraction. In other words, a quicker, better, and tighter job is possible with Berger shingles, and a more lasting and beautiful roof covering achieved.

"Berco" shingles are furnished in 10 by 14-inch size and are made either from galvanized rust resisting "Toncan" metal or galvanized open-hearth steel, painted terne plate, of any weight of coating, desired.

"Houses," said Bacon in his classic Essay on Building, "are made to live in." "Berco" shingles make houses more livable and add to their appearance and increase their value. The Berger Mfg. Co. will cheerfully furnish samples and give whatever further information the reader may desire about this kind of ornamental roofing.



Save Time and Lumber

How much lumber do you imagine the average contractor saves from scaffolding, falsework, concrete forms and other temporary structures? Most of the lumber used in this way is broken up so badly in taking it down, that it is useful only as kindling wood. The lumber is certainly not injured very much in putting it up, but when the contractor tries to take the structure down, the lumber is all torn to pieces in digging the nails out.

A simple little devise has been placed on the market that, according to many who have used it, saves frequently 100 per cent of the lumber used for temporary purposes. This little time-saver is called the "Pull-Easy" nail collar. It is

Dart



Are You Watching the Clock?

How much time goes to waste getting your men and material on the job? How much does this time mean to you in dollars and cents?

You know as well as we do, that when the hot weather comes on, a horse cannot make the time and that you are going to lose hundreds of dollars when you lose one and probably more horses from the heat. When you come to consider that your investment in the horses that will be lost, or the loss to you while they are laid up, would make the first payment on a Dart truck, don't you think it would be good business to equip yourself with a Dart truck now?

We build trucks especially for the contracting and the advantage to write us and let us show you how we can save you money when you **buy** your truck and save you money every minute it **runs**.

Fill out the coupon below and mail it while you have the time. Trying to do business without a Dart truck is like trying to do business without any other equipment of your trade.

Model "A" $\frac{1}{2}$ ton, with Empress body.....	\$ 875.00
Model "B" 1 $\frac{1}{2}$ ton, chassis.....	1400.00
Model "C" 1 $\frac{1}{2}$ ton, chassis.....	1800.00

DART MOTOR TRUCK COMPANY
Dept. C-1, :: :: :: :: :: Waterloo, Iowa

DART MOTOR TRUCK CO.,
Dept. C-1, Waterloo, Iowa

Gentlemen:—Am interested in improving my delivery equipment.

Name.....

Address.....

Town.....State.....

The integrity of your equipment depends on the power factor—

"Contractors who want Constant Service use IDEAL Power"

"The chain is no stronger than its weakest link"—so it is obvious that to realize the greatest percentage of efficiency from your power driven equipment, the engine must have first consideration.

All engines will not show results in the contractors' service, and there may also be some lines of work on which Ideal power is not adapted—but we do say and back it with facts that drive home, that *IDEAL is the only engine for all around contractors' service.*

IDEAL Power was designed primarily for heavy service and use on concrete mixers, hoists, pumps, etc.

Clean cut, powerful, ever-ready "Constant Service" is the most valuable asset of

Ideal Type M Engines

Why, you may ask, is IDEAL power best for contractors' machinery?

Well, as a starter we have in the contracting service more or less dirt, cement, dust, etc.—for protection—*enclosed crank case.*

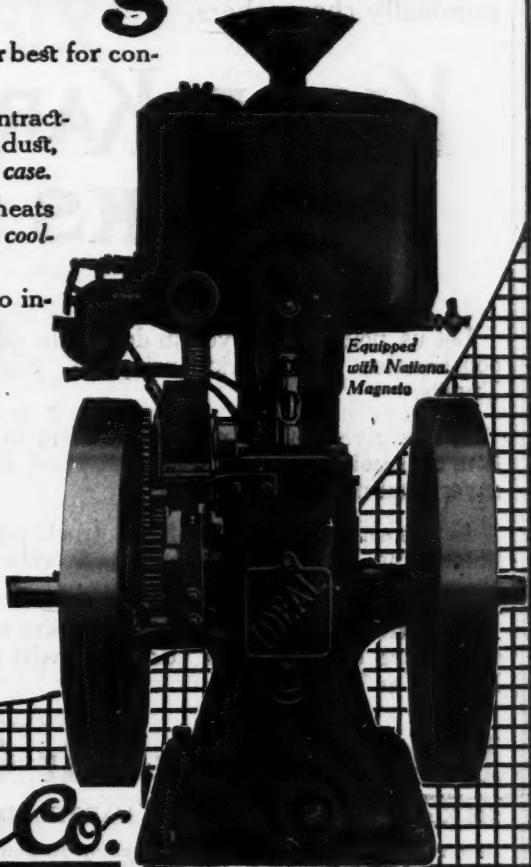
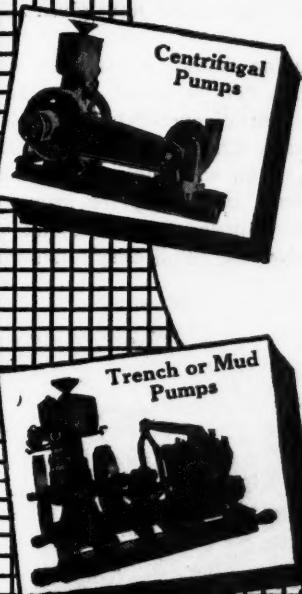
The work is hard, which readily heats the cylinder—therefore, *extra large cooling hopper.*

The power must be constant, and to insure quick action instead of sluggish or faulty explosion *large valves* are used.

As most equipment is truck mounted—we have designed to *eliminate vibration.*

Usually cheap labor in charge—therefore *self-oiling boxes*, simple operation—*frost and fool-proof.*

Before going further start investigating IDEAL Power. Our catalog No. 415 is very interesting.



Original Gas Engine Co.

R. E. OLDS, Chairman

630 Kalamazoo St., E., Lansing, Michigan



How To Select The Right Truck

To select the right motor truck for your needs, it is wise to be governed largely by the experience of others.

If you will inquire carefully among carpenters and builders using KisselKar Trucks, you will find that they are satisfied that they chose the best.

They will tell you that their KisselKar Trucks are running continuously and consistently, more efficiently and more economically than others.

KISSELKAR TRUCKS

in Six Sizes

Let us point out to you in detail the superior construction and workmanship of KisselKar Trucks.

Let us give you the names of others in **your line of business** who have found them money-savers and money-makers.

Let us send you a copy of our truck portfolio illustrating hundreds of these sturdy vehicles as they appear in the service of owners.

The more carefully you investigate trucks the more certain it is that you will select KisselKar Trucks.

Kissel Motor Car Co.

546 Kissel Avenue, - - - HARTFORD, WIS.

New York, Chicago, Boston, Philadelphia, St. Louis, Milwaukee, St. Paul, Omaha, Minneapolis, Baltimore, Pittsburgh, Cleveland, Detroit, San Francisco, Los Angeles, Seattle, Buffalo, Rochester, Columbus, and 300 other principal points.

a little collar that fits over the nail and prevents it from being driven into the wood so far that it cannot be withdrawn readily. The collar keeps the head of the nail projecting so that the claw of the hammer will take hold, when the nail is to be withdrawn.

The results obtained by this very simple little devise are remarkable. The manufacturers are continually getting letters from contractors who say that they are realizing up to 100 per cent salvage on temporary structures, where formerly the lumber used in these same structures were almost a dead loss. The illustration attached is a picture of the Dime Savings Bank, Toledo, Ohio. The contractors for this building, A. Bentley & Sons, used 60,000 "Pull-Easy" nail collars on the scaffolding, hoist tower, and inside forms. They report that the lumber used for this purpose was not damaged in the least and was saved without any loss to them. This building is of reinforced concrete. The photograph was



THE COLLAR



ON THE NAIL

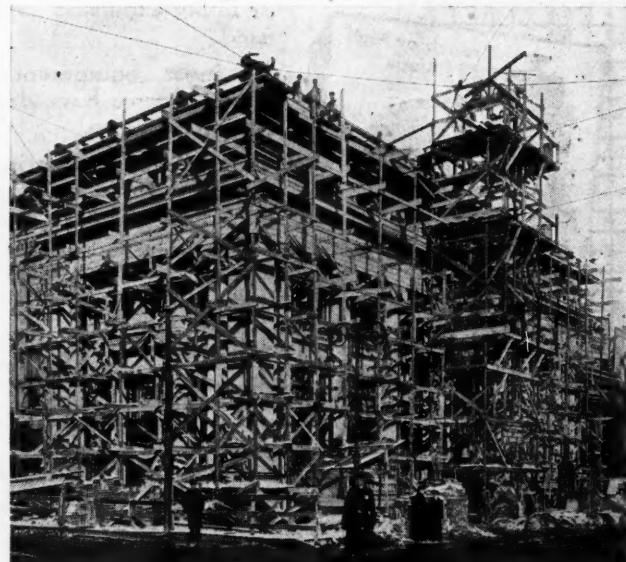


IN THE CLAW

taken in December, during the construction of the building.

Several other instances are given by the manufacturers. A contractor of South Bend, Ind., reported that the lumber used for temporary work in a synagogue, which he recently constructed, was returned to the lumber dealer with no charge except for haulage. In the Lumber Exhibition, at Minneapolis the men in charge say that they received a salvage of 100 per cent on all lumber used for temporary purposes. In both these instances "Pull-Easy" nail collars were given as the direct cause of this saving.

The cost of these money-saving devices is extremely small compared with the lumber that can be saved. Contractors and builders should write to the Wagner-Behm Co., Room 1201, 20 East Jackson Boulevard, Chicago, Ill., for information concerning their product. They will gladly give instances where it has saved lumber, time, and money for many contractors. They will also send sample packages to all who wish to see for themselves how the "Pull-Easy" nail collar actually works.



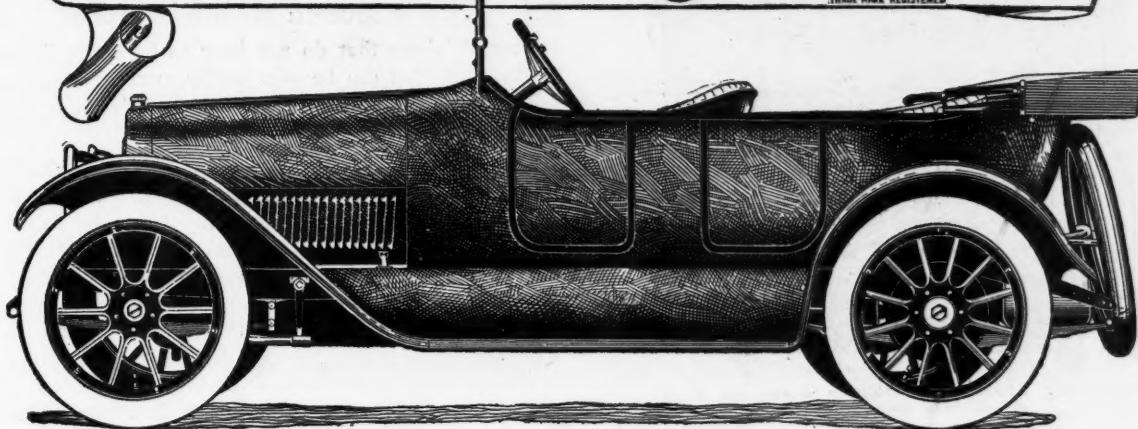
60,000 "Pull-Easy" Nail Collars Used on These Forms—New Dime Savings Bank, Toledo.

*The result of
22 years' successful
experience in
building motor cars*



TRADE MARK REGISTERED

America's Greatest "Light Six" \$1485



The Haynes Idea of a "LIGHT SIX"

Haynes "Light Six" cars must give continued service under every possible condition.

The motor is of the small, light, high speed type to give the maximum results in either slow or fast driving. The high speed motor has proved its worth. The motor is perfectly balanced—a feature that adds to the life of the car.

Extreme simplicity of all working parts of the chassis is necessary to give light weight, long life, and low expense of upkeep. Accessibility of every part of the Haynes is provided for ease and convenience in caring for the car. With its light weight, tires last longer and the oil and gasoline consumption is less.

The weight is properly distributed to the four wheels to give easy riding, and the ability to stick to the road.

Two Models---Three Body Styles

Model 30—America's Greatest "Light Six"—5 passenger touring car, 121 inch wheelbase, weight 2950 lbs.,	\$1485
Model 30—The Prettiest Roadster in America	1485
Model 30—The Haynes "All-Weather" Cabriolet	1750
Model 33—The Kokomo "Six"—a "light" 7 passenger touring car, 127 inch wheelbase, weight 3050 lbs. . .	1550

All Prices F. O. B. Kokomo

||||| WRITE NOW TO |||||

THE HAYNES AUTOMOBILE COMPANY, 14 So. Main St., Kokomo, Ind.

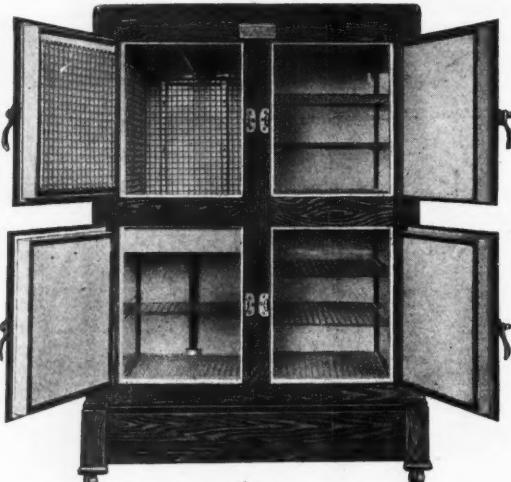
Please send me your 1915 catalog with full particulars in regard to America's Greatest "Light Six".

Name Address

I expect to buy a car about

Make Your Refrigerator Useful in Winter

In the winter time, ice seems to be considered a useless luxury, so the refrigerator is moved on to the back porch where it is very handy to tramps and stray prowlers. There are two solutions of this condition: either you must buy ice, or install a refrigerator that is iced from the outside. In the latter case, the icing door can be left open and the



Plan Your Kitchens to Make a Place for This Stock Size Refrigerator.

cold air from the outside will cool your refrigerator and at the same time you will not be threatened with the possible loss of various delicacies that are intended for home consumption.

The Herrick Refrigerator Co., Waterloo, Iowa, have been making a specialty of these refrigerators that are iced from the outside. This company have a new plan for installing

these refrigerators. They suggest that, when the kitchen is small, a little alcove be built off the kitchen to hold an outside-iced refrigerator. Contractors and builders, who have a proposition like this to handle, are requested by the manufacturers to put it up to them. They will gladly furnish plans so that the alcove can be built to hold a standard refrigerator and thus a special refrigerator will not have to be built.

Write to the Herrick Refrigerator Co., Waterloo, Iowa, for their catalog No. 24A and get their assistance on your refrigerator problems. They will gladly help you.

Electric Dumb-Waiter

Dumb-Waiters that do not have to be dragged from floor to floor but that can be sent for by merely pushing a button are destined to become one of the most desirable features of a house.

The Storm Manufacturing Co. are making an electric dumb-waiter that is very simple in construction and also has many trouble and time saving features. It can be called to any floor by pushing a button and can be returned to the ground floor or to any other floor, depending on the control method that is installed. These dumb-waiters are made with various capacities and various speeds to accommodate all conditions. The mechanical controller used by this company is a feature. It consists of a double pole reversing switch that releases the brake the moment the motor circuit is made. This process is repeated when the device is stopped.

We think our readers should be familiar with this machine. A card to the Storm Manufacturing Co., Herman and Vesey Streets, Newark, New Jersey, will bring a full description of these electrically operated dumb-waiters. You can also obtain information concerning their well known line of hand power dumb-waiters and elevators.



Barns and Barn Equipment

There is a progressive contractor in every locality who is going to seize the opportunity created by the European War. You wonder at this statement, but consider the conditions a moment. The enormous increased demand for American farm products has caused all modern farmers to realize the importance of obtaining the maximum yield for the next few years at least; that this may be accomplished it will be necessary to build new barns and remodel many others. Needless to say, this work is of a profitable nature, and with the assistance we offer, should prove attractive to all contractors.

We maintain a Free Service Bureau for the benefit of the farmers in particular, but all contractors and parties interested in modern farm buildings as well. Send us your barn problems, as we can assist you greatly; remember that we manufacture Complete Barn Equipment and every phase of your work in this connection has been carefully considered. Detailed Floor Plans are sent free of charge, and we co-operate with you in every possible way.

Don't overlook this chance to begin a profitable business for yourself, and send us today the names of parties expecting to build or remodel barns in your vicinity.

Complete catalogue will be forwarded you immediately.

J. E. PORTER COMPANY

620 Fremont Street, OTTAWA, ILL.

Builders: JAMES Service Will Help You to Get More Barn Jobs

And nothing will do more to open up a **big** barn building business for you than to erect one in a neighborhood with the advice and assistance of JAMES experts. That one job will lead to more, for the dairyman who sees a JAMES-designed barn wants one for himself.

It will pay you to learn more about

Helpful Dairy Barn Ideas FREE See Special Blue Print and Barn Book Offer Below

Our free service tells about proved principles that enable the builder to establish a reputation as the best barn-builder in his community. It tells about the plank frame construction—about ventilation, proper lighting and location, proper size and arrangement, construction of floors, position of posts, drainage, equipment, etc.

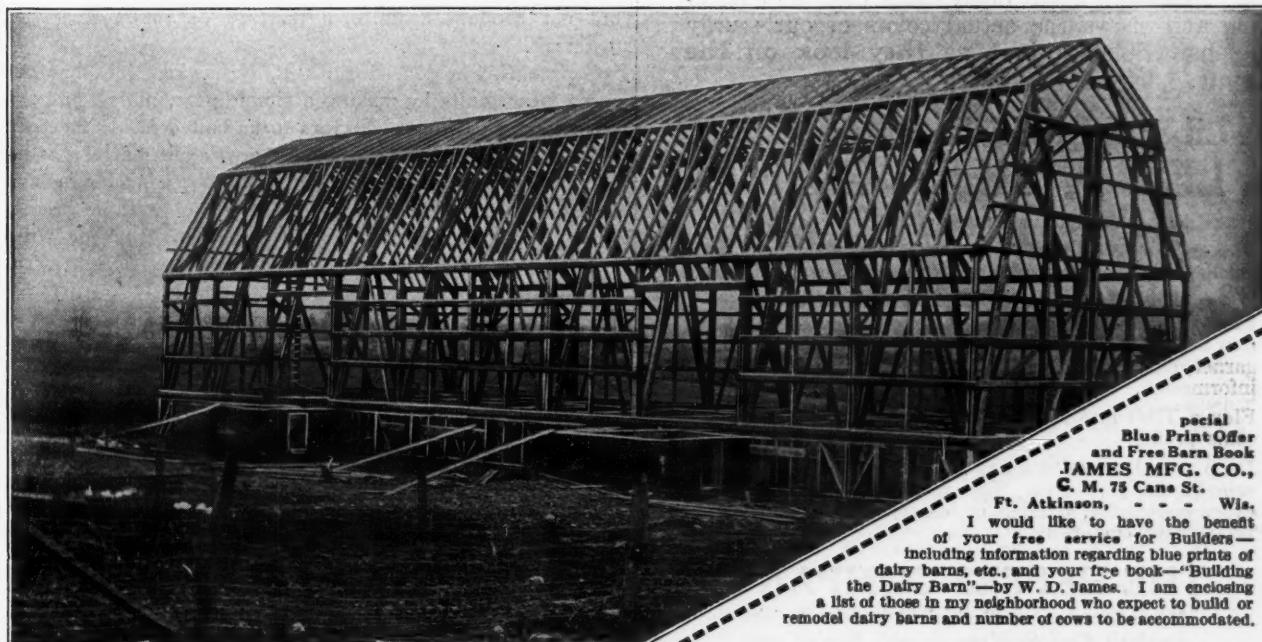
All we ask you to do is give us the names of

the latest, most economical and most sanitary methods of Dairy Barn Construction. It will open the way to new and bigger profits.

Builders in all parts of the country have taken advantage of this service, and many of them have made barn building the most profitable feature of their work.

dairy farmers in your section who expect to build or remodel barns. We'll help create the business for you. **Let's work together.**

We have complete blue prints, specifications, floor plans and lumber bills for many different types and sizes of modern dairy barns. Ask about them now—and how to get the free help of our Architectural Department;



JAMES MFG. CO.,
C. M. 75 Cane St., Ft. Atkinson, Wis.

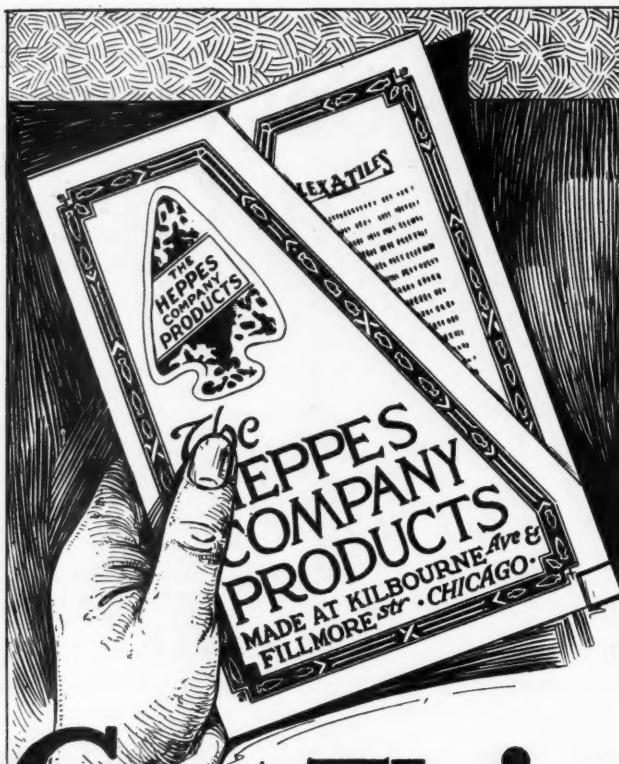
Special
Blue Print Offer
and Free Barn Book
JAMES MFG. CO.,
C. M. 75 Cane St.

Ft. Atkinson, - - - Wis.
I would like to have the benefit
of your free service for Builders—
including information regarding blue prints of
dairy barns, etc., and your free book—"Building
the Dairy Barn"—by W. D. James. I am enclosing
a list of those in my neighborhood who expect to build or
remodel dairy barns and number of cows to be accommodated.

Name.....

Postoffice.....

R. F. D..... State.....



Get This Reference Book on ROOFING

Just off the presses. Our new handsomely illustrated Roofing Reference Book. Of interest to every contractor, builder and carpenter.

It explains all about our various brands of Roofing and shows the actual colors of our sturdy Asphalt Shingles **just as they look on the roofs.**

Liberal FREE Samples of the FLEX-A-TILE "GIANT"

a new asphalt shingle accompany the reference book.

Flex-a-Tile "GIANT" Asphalt Shingles are 50% thicker, 50% heavier and 100% stronger than the standard asphalt shingle. This means a 25% saving in labor.

Flex-a-Tiles are also made in standard weights and can now be had in five (5) handsome colors, red, greenish gray, garnet, emerald and brown. See Reference Book for full information.

Flex-a-Tiles make handsome roofs and afford you handsome profits.

Drop postal or write today and we will send book and samples for your files. This reference book is one that every contractor, builder or carpenter can show to his prospective customers.

THE HEPPES COMPANY

*Manufacturers also of Asphalt Paint,
Asphalt Roll Roofing in any Finish and
Utility-Board, the preferred Wall-Board*

1010 South Kilbourne Ave., CHICAGO, ILL.

President of Cortright Metal Roofing Company Dies

Mr. S. P. Darlington, late president of the Cortright Metal Roofing Co., of Philadelphia and Chicago, succumbed to a long illness at his home in the Burlington Apartments, Spruce and Juniper Streets, on March 11th. He was 79 years old.

Mr. Darlington was the founder of the company of which he was president. Prior to forming this company he had been identified with the Pennsylvania R. R. Co., as superintendent of the Harrisburg division, and had engaged in the manufacture of wheels and wheel material in West Chester.

His early education was received in Bolmar's Academy. After graduation he engaged for a short time in the hardware business in Philadelphia.

The death of Mr. Darlington has naturally caused some speculation as to the future conduct of the Cortright Company, and it is gratifying to be able to state that the company plans to continue its business in the future along the same satisfactory lines as have characterized its successful operations during the past.

Mr. Walter M. Boggs, who has hitherto acted as Vice-President and General Manager, is to continue in that capacity, and there will be no changes in the active management of the concern.

Mr. Darlington was a prominent Mason, and member of the Union League, one of Philadelphia's leading associations of business men. Throughout his long life he had endeared himself to a wide circle of friends, who will deeply deplore his loss.



Sheldon's Home Made Mixer

With the constantly increasing use of concrete on the farm has come an increasing demand for a concrete mixer for farm use, to be operated either by hand or engine power. Various home-made affairs have been built and tried out but with varying degrees of success. The general plan of all these home mixers has included a barrel or box, rotating on an axis, but a common fault found with them has been that they were hard to turn, and that they did not produce a uniform mixture of the materials.



George C. Sheldon, Box 320-R, Nehawka, Neb., has overcome these faults by making a simple gear, pulley, and trunnions, and also some deflectors to be bolted inside the barrel. This equipment may be put on any stout barrel; and by making a frame of 2 by 4's and 2 by 6's, a man can have a mixer at a few dollars' expense, and two or three hours of work. The mixer may be run either by hand or with a small engine, and will mix 3 cubic feet of concrete at a time, dumping it into a wheelbarrow.

He will send free on request blue-print plans so you can make one; also catalog of castings.



The "New-Feed Underfeed" Heater

What will go on record as one of the greatest advances in modern heating systems is the New-Feed Underfeed, a wonderful development of the Williamson Underfeed, made by the Williamson Heater Company, 217 Fifth Ave., Cincinnati, Ohio.

The principle of the Williamson Underfeed is the "candle" principle—that of feeding the fuel from below. The fresh coal is forced up against the clean, live coals and flames which are always on top, directly against the most effective radiating surfaces.

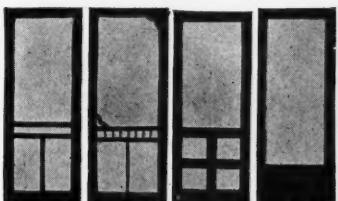
This means that the fire does not have to "fight itself" in order to do what it is intended to do. The fire is not chilled

Values Shine in the Huber Line

Builders buy here because we treat them fine

It only takes one order to convince you that we can save you money on building materials and give you better quality together with real service, no matter where you are located.

We do such a large volume of business that only a very small profit is necessary, consequently we offer you standard goods at lowest possible prices. Our central location makes freight rates to nearly every part of the U. S. very low and gives us the most advantageous shipping facilities.



SCREEN DOORS

All styles—highest quality, lowest prices. 70 cents and up.



ELECTRIC BELL SET.
No. 26. Best for the price. \$1.20
1 2 1/4-in. Bell with gong.
1 Dry Battery.
1 Improved Imitation Leather Case.
1 Polished Hardwood Push Button.
25 ft. double Wire (equal to 50 ft. single wire).



No. P-404. Leaded art glass Landscape window; cathedral background; colors to suit; opalescent ornaments and cut jewels. Price. 70c

STAIR RAILS.



No. X-Ray.
1 1/4 x 2 1/2 in.

8457

No. 8457.
3 1/2 x 1 1/4 in.

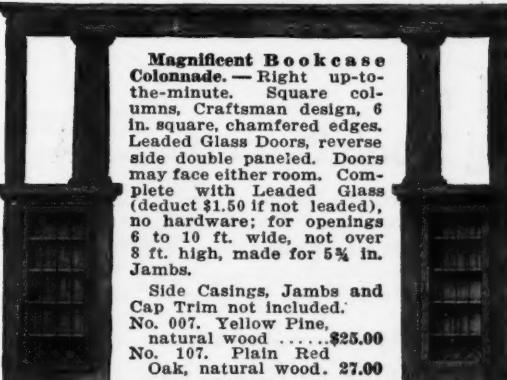


No. 1015.

Plowed 1 1/4 or 1 1/2.
2 1/2 x 3 in.
Built up, will always stay straight.
Style, Yel. Pine Oak
X-Ray 5c 6 1/2c
8457 6c ...
1015 11c 14c



PARLOR GRILLE No. H-67.
16 in. deep at ends. 80c lineal ft.



Magnificent Bookcase Colonnade.—Right up-to-the-minute. Square columns. Craftsman design, 6 in. square, chamfered edges. Leaded Glass Doors, reverse side double paneled. Doors may face either room. Complete with Leaded Glass (deduct \$1.50 if not leaded), no hardware; for openings 6 to 10 ft. wide, not over 8 ft. high, made for 5 1/4 in. Jambs.

Side Casings, Jambs and Cap Trim not included.
No. 007. Yellow Pine, natural wood. \$25.00
No. 107. Plain Red Oak, natural wood. 27.00

"To Huberize is to Economize"

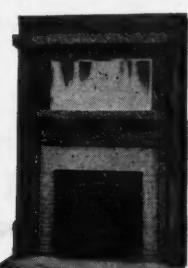
No matter what you need, whether it be lumber, roofing, paints, interior trim, millwork, hardware, windows, stair work, wall boards, mantels, etc., get our prices before buying. On this page you will find a few items representative of our stock and prices.

Our new large illustrated Catalog and Mantel Book will be mailed to you if you send in the coupon at the bottom of this page. Mail it in and start saving money now.

The Huber Builders Material Co.
45-49 Vine St., Cincinnati, Ohio



"SURVIVO"
Chipped slate roofing. A good durable roofing comes, in two rich colorings, red and green. Price per 100 square ft. \$1.90
"Survivo" is also obtainable in individual shingles.
Per square. 34.50



MANTEL No. 1240
7' high, 5' wide, tile Opg. 42x39", profile 4".
pilasters 3 1/2", mirror 36x18". Plain Oak, Golden Gloss. \$16.25
Quarter Oak, Golden Pol. \$19.06



Column
No. 90.

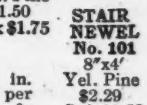
8' long, dia. of base 6", dia. of shaft at neck 4 1/2".
Yel. Pine \$1.50
Oak \$1.75



Bungalow "B."
A very pleasing design in a door. Only \$2.00



**STAIR
NEWEL**
No. 31
4 1/2" x 5'
Yel. Pine \$1.50
Oak \$2.50



**STAIR
NEWEL**
No. 101
8" x 4'
Yel. Pine \$2.29
Oak \$2.50

TRANSOM CENTER.

Coppered.
No. 33. 2 1/2 x 7/8 in.
Stem 3/8 in., per pair. 6c
No. 34. 2 1/2 x 1 in.
Stem 7/16 in., per pair. 8c

FREE

Our large Builders Material Catalog and finely illustrated Mantel Book. Send in the coupon.

NAME.....

ADDRESS.....

STATE.....

The Huber Builders Material Co.
45-49 Vine St., Cincinnati, Ohio

Gentlemen:—
Kindly send me your new large Building Material Catalogue. Also send me your Mantel Book.

DO YOU A CONTRACTOR

every time coal is to be added. And, since the principle of combustion is up, up, up all the time, it means that all dust, smoke and gases which have to pass up through the flames are transformed immediately into clean, live, usable heat.

In the New-Feed Underfeed the "coal feeding" lever is operated from a standing position—no stooping. From three to five easy strokes of the lever will force one bushel of coal from the hopper into the fire box. This means that the New-Feed Underfeed is simpler and easier to operate than ever. A boy of twelve can easily do it.

Another wonderful advance is the simple method of first feeding the coal supply into the hopper or feed cylinder. This is accomplished by raising each shovelful of coal only a few inches from the floor. The large ash-pit door enables the cylinder to be easily and quickly filled without loss of coal, time or temper.

All this means that the cylinder-filling and the after feeding operations of the New-Feed Underfeed save many pounds of effort. A unique feature of the cylinder is that when it is tilted forward to be replenished, it automatically operates an apron that slides forward and holds the coal in position on the grate. Experts say this is a very ingenious and practical arrangement. This apron serves in preventing the coal from dropping back into the reservoir or cylinder after it has been raised to the fire-pot. This means that the body of coals and live fire are always in place.

All in all, the New-Feed marks a wonderful advance in heating systems. It is a heater that can be recommended and installed with every assurance of comfort, saving and satisfaction. Since it is adapted to warm air, steam or hot water, its versatility lends itself to any new building requirement as well as to the installation of new heating equipment in old buildings.

Superior Door Check for Screen Doors

A simple, strong, and easily regulated door check for screen doors or other light single-acting doors is manufactured by the Superior Spring Hinge Co., 152 E. Lake St., Chicago, Illinois.

This device will prevent all light doors from slamming and can be regulated to close them either quickly or slowly as the owner wishes. Its construction is shown in the accompanying illustration.

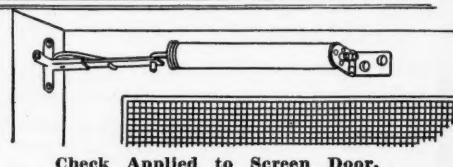
The cylinder, which is made of one piece seamless brass, is $6\frac{1}{4}$ inches long with a diameter of $\frac{7}{8}$ inches. All the other parts are

made of cold-rolled steel with the exception of the needle valve, which is made of brass in two parts. The manufacturers say that it is very easily attached and will last for an indefinite period. To show the extent of its durability, the manufacturers had it tested on a screen door which was operated 700,000 times. The report states that the check showed no defects or signs of wear in any way.

The compactness of this device is a feature. It can be used where there is only $1\frac{1}{2}$ inches between screen door and house door.

The company manufacturing this also make a fine line of spring hinges, door holders, and floor spring hinges.

A card to the Superior Spring Hinge Co., 136 W. Lake St., Chicago, Illinois, will bring full particulars regarding their line.



Check Applied to Screen Door.

EQUIP YOUR BARNS WITH MYERS HAY UNLOADING TOOLS

Myers Unloaders, Forks, Slings, Pulleys, Tracks and Fixtures represent the highest degree of perfection in Hay Unloading Tools—the standard for thirty-five years. You owe it to your hay-making customers to recommend and install the best—the Myers—the most practical and up-to-date line of machinery on the market for Unloading Hay or Grain from the rack into the mow or onto the stack.

Myers Hay Unloading Outfits are easy to install, and considering quality very low in price. They are built for continual hard service and stand up under the strain when rush harvest is on. Myers Unloaders are all large capacity, and are built to handle one or two forks, or slings. Different styles have extra long trucks and operate on single or double steel track, wood or cable track. Myers Forks, Slings, Pulleys and Fixtures are a standardized line and constructed to handle the extra heavy loads now required of this class of machinery.

Are You Posted on Myers Hay Unloading Tools?

If not, better let us send you our late Catalog and Circulars showing complete line—Unloaders, Forks, Slings, Pulleys, Tracks, Hooks and Fixtures, and also Myers Stayon and Tubular Door Hangers and Tracks. Harvest will be here in no time and your trade will want **Myers Hay Tools**. Let us have your inquiry today. Circulars and name of dealer sent to anyone. Prices and terms to dealers and contractors.



F. E. MYERS & BRO.,

Ashland Pump and
Hay Tool Works

Ashland, Ohio

"Safety First"

Cut Nails



U. S. GOVERNMENT TESTS

conducted at the United States Arsenal, Watertown, Mass., in competition with wire nails demonstrated the superiority of cut nails. These tests were conducted by Army engineers. All lengths were used in all kinds of wood and under all conditions. In every single case cut nails came out winners by a big margin. The results of the tests showed cut nails had

47% to 135% Greater Holding Power

Cut Nails are by far more durable. They add life to any building where used. They prevent decay by not rusting out and do not split the wood if driven properly. Best for picket fences, weather boarding, shingle or slate roofs, flooring and all outside work, or for any use wherever desired to hold wood to wood **firmly**. You'll notice the difference after once using them. Use CUT NAILS in the interest of better building. In years to come your buildings will still be as solid and firm as the day you put them up. We have records of Cut Nails over 200 years old in some of the oldest houses in America. They are still good—free from rust and good for many years more.

The Merits of Cut Nails are Many

Try them on your next job. They'll last as long as the building. Get them at your local Dealer or write to nearest manufacturer listed below for FREE Samples and name of nearest local Dealer.

CUT NAIL MANUFACTURERS

GEO. B. LESSIG CO. Pottstown, Penna.
LA BELLE IRON WORKS Steubenville, Ohio
WILLIAMSPORT IRON & NAIL CO. Williamsport, Pa.
TREMONT NAIL CO. West Wareham, Mass.

VAN ALEN & CO. E. G. Van Alen, Northumberland, Pa.
NORTON IRON WORKS Ashland, Ky.
E. & G. BROOKE IRON CO. Birdsboro, Penna.

Willis Enlarges Plant

The Willis Mfg. Co., Galesburg, Ill., have recently built a new fireproof building two stories high, of cement and brick throughout, with floor space aggregating 21,500 square feet. This gives them a total floor space of 43,000 square feet.

They originally started 24 years ago with a small shop with an area of 2,100 square feet, and have built up a big business among contractors, builders and dealers.

They are pioneers in the sheet metal business, and by careful attention to small orders as well as large, have established an enviable position for themselves. A great many of their best customers subscribe to the AMERICAN CARPENTER AND BUILDER.

Their catalog No. 6 is one of the most complete catalogs of sheet metal goods ever gotten out by any manufacturer in this line.

Their new building is being used almost entirely as a stock room, as they always plan to have plenty of material on hand to fill orders promptly, even in the busiest season.

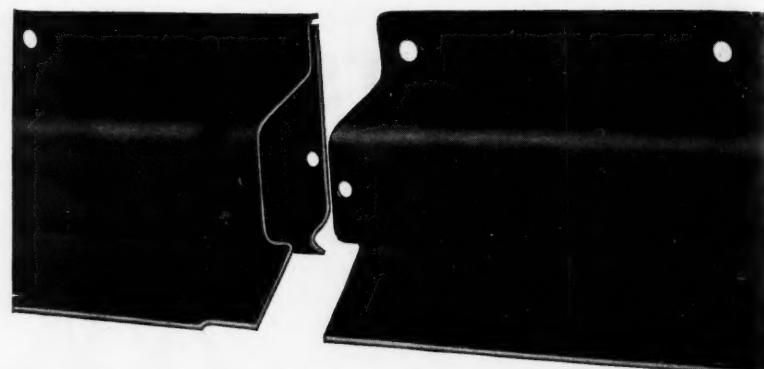
It is interesting to note that their original building, 27 by 78 feet, is now being used as a shipping room.

The Willis Manufacturing Company manufacture and sell metal ceilings, skylights, barn ventilators, ventilators for stores and all other purposes, store fronts, metal shingles, finials, cornices, fireproof windows, fire ladders, etc.



New Slip Joint for Wagner Door Tracks

The accompanying illustrations show the new slip joint for

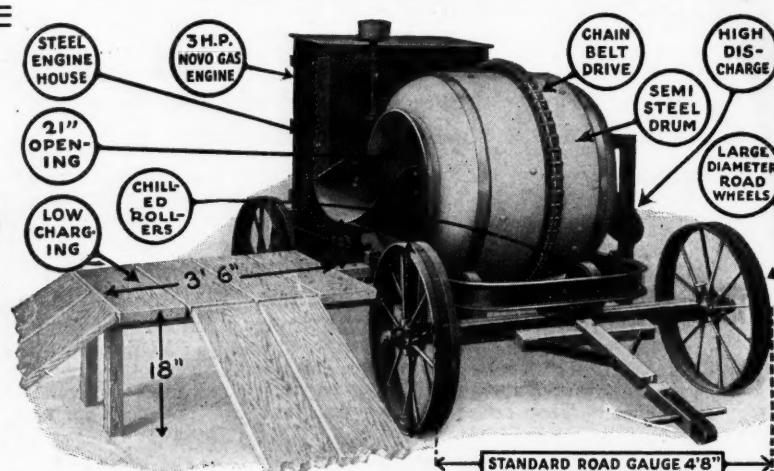


Wagner's New Slip Joint in Two Positions.

connecting "Ever Tight" and "Rain Shed" tubular barn door tracks. This does away with brackets, joint splices, etc., at the same time makes a perfectly smooth running joint, and is easily put together. The "Ever Tight" and "Rain Shed" tubular tracks are made and sold exclusively by the Wagner Mfg. Company, Cedar Falls, Iowa.

DEX LOW CHARGING MIXER

The Latest
Chain Belt \$275
Product



A High Quality Low Priced Mixer

You Builders who have felt the need of a dependable high quality mixer for your construction work—at a reasonable cost—will find The REX just what you want.

**IF YOU FIGURE ON SPENDING LESS THAN \$500 FOR A MIXER,
INVESTIGATE THIS SENSATION AMONG SMALL MIXERS**

The Rex has a capacity of 5 cubic feet of mixed material and will thoroughly mix and discharge a batch in 45 seconds. Riveted Chain Belt Drive is used, which is the most efficient and durable Mixer Drive ever designed.

The REX is easily portable—standard wagon gauge, with large wheels, makes haulage easy.

Let us show you how to obtain greater mixer value.

Write for Rex Bulletin 59A

CHAIN BELT COMPANY, 730 Park St., Milwaukee, Wis.

HOBBS OF COURSE

The **one** Block Machine that is positively **better made**, actually **faster**, and that makes **natural** rock face and **real** ashlar.

Send **today** for catalog and state whether 16-in. or 24-in. size is desired.

Adjusts to
2,000 Sizes
We ship on
trial anywhere



Hobbs Concrete Machinery Co.

724 Peter Smith Bldg., Detroit, Mich.

WHY NOT
**BUY A REAL MIXER FOR
\$86.50**



After trying out the different type batch mixers for several years the continuous mixers are coming back. A real continuous mixer with a conscience has been proven to be more accurate than a batch and more economical to operate. We are showing here our new Machine that is designed especially for Block and Tile plants and that small job that is a nuisance, but must be taken care of. Hitch it behind your automobile. You can make more real money on the small jobs, if you are properly equipped, than on the large competition jobs. We make all styles and sizes, from \$26.00 up. Buy this Automatic Mixer today. The proportions can be changed in one minute and the feed is absolutely accurate. Price for **Hawkeye Jr. Automatic Concrete Mixer** on Trucks with 1½ H. P. Water-cooled Engine complete ready to run, Capacity 40 yards per day, **\$86.50**. Price on Skids, **\$45.00**. Write for our free Catalogue of Mixers and Block Machines.

Farmers' Supply Co., Janesville, Ia.

The **INCOMPARABLE** **FIVE**

Contractors, to whom quality appeals, will be pleased to study the specifications of the

Number Five

EUREKA **BATCH MIXER**

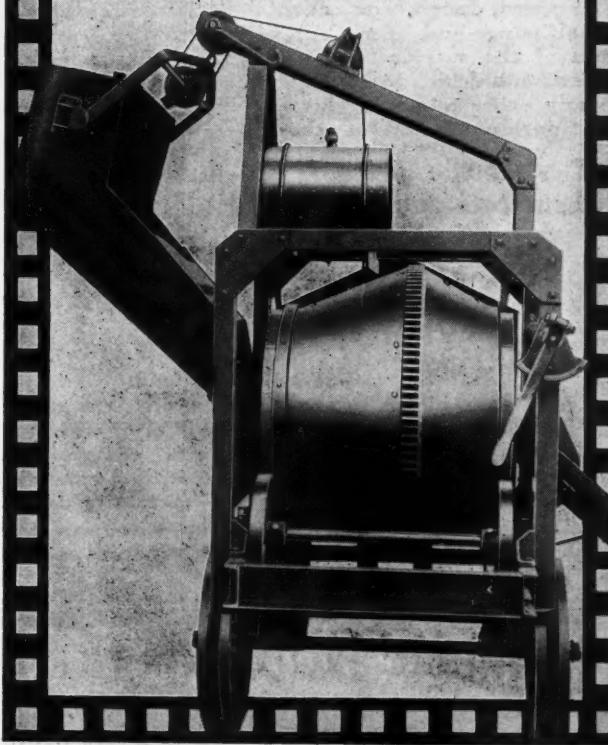
"Quality Wins"

Quality and approved engineering standards have been incorporated into this mixer to a remarkable degree. Your inquiry for bulletin will receive immediate attention.

EUREKA MACHINE CO.

"Builders of Quality Mixers"

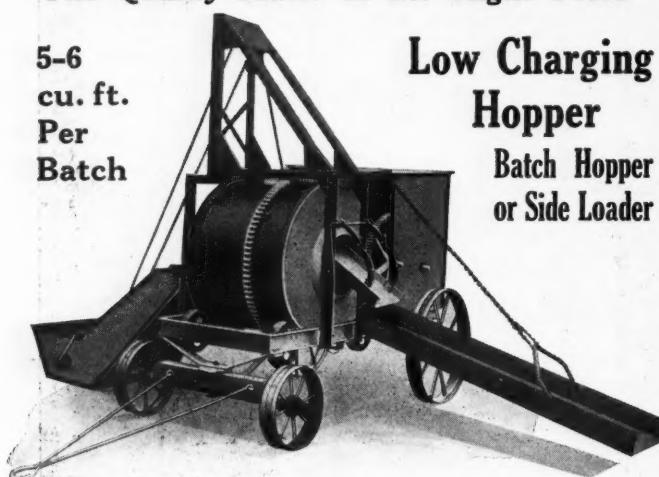
103 HANDY STREET
LANSING, MICH.



REPUBLIC "SIX"

"The Quality Mixer at the Right Price"

5-6
cu. ft.
Per
Batch



Low Charging
Hopper
Batch Hopper
or Side Loader

Save \$100
Why Pay More?

YOU can't be stopped from paying \$50 to \$100 more for a mixer of this size, but a higher price doesn't mean a better mixer. There are only five things you can get in a mixer no matter what price you pay, and that is, output, speed, durability, convenience and economy, and every one of these, and more, too, are included in this machine.

The Master "Six" of Concrete Mixers Saves 4 to 8 Men

It is a good big machine, built for the hardest service; and in speed, design, size, adaptability, workmanship, material, power and operation, IT'S RIGHT. A comparison of the specifications will show larger wheels, trunnions and drum; better engine, material and design, than any other mixer of this size and class, including many things not found on other mixers.

C And the price is so low you can afford one for the smallest job

Pay For It Out of Your Earnings Cheaper than Renting

The great convenience in operating, moving; the good design and workmanship; the small number of wearing parts, and the fool-proof construction, gives you a mixer operative at the very lowest possible cost, and refunds in earnings what you pay for it in ten to twenty days.

Write today—before you forget and let us tell you in how many ways the Republic "Six" will save and make money for you.

REPUBLIC IRON WORKS

General Office:
LANSING, MICH.

Eastern Sales Office:
PITTSBURGH, PA.

Fourth Edition of H-L-F Plan Book Just Out

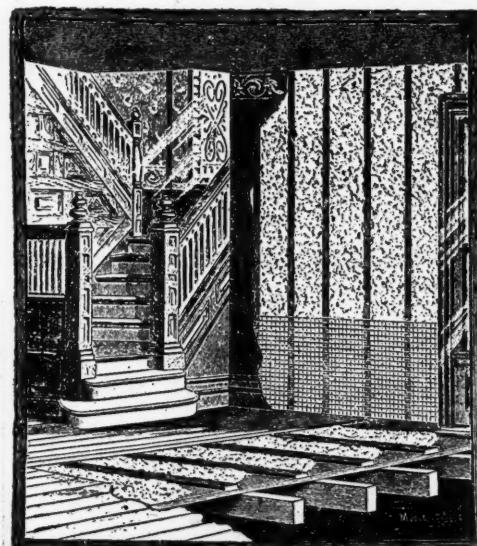
The fourth edition of the "Prize Plan Book" just issued by the Hewitt-Lea-Funck Co. is now ready. This book is packed with good building ideas. The index on the first inside cover shows that the book contains plans of small homes and big homes—of homes with three rooms up to eight rooms, with more attention given to the homes with six, seven and eight rooms.

The keynote of the homes pictured in the new H-L-F book is convenience and simplicity. In addition to pictures of each house, and full description, are given floor plans, specifications and guaranteed costs. At a glance, the reader can not only get the idea set forth in the plan, but also the cost of the materials, and estimated cost of other items. Any reader can secure a copy of The Prize Plan Book, by sending the small nominal price to Hewitt-Lea-Funck Co., 908 Crary Bldg., Seattle, Wash.



Insulating Material That Insulates

The use of dead air spaces to stop sound transmission and to prevent temperature changes has long been considered a good feature to incorporate in buildings.



One air space is good; two are better; a dozen or a hundred spaces would be better yet. A contractor cannot build so many walls without spending a young fortune, but he can attain this condition by the use of a well-known material, namely, Mineral Wool.

According to the manufacturer, this substance is made by converting scoria and certain other rocks to a fibrous condition while in a melted state. In appearance it consists of many little fibres running in all directions. These fibres have the nature of glass except that they are soft, pliant, and inelastic.

This material has the added advantage over an ordinary air space of being vermin and fire-proof. It is of a vitreous nature and will not burn; and thus, if used in the walls, will have a fire retardant effect even on a most inflammable building. It has no organic matter in its composition and the glass-like fibres are extremely irritating to anything which attempts to burrow into it.

The illustration shows mineral wool as it is used in house construction for insulating.

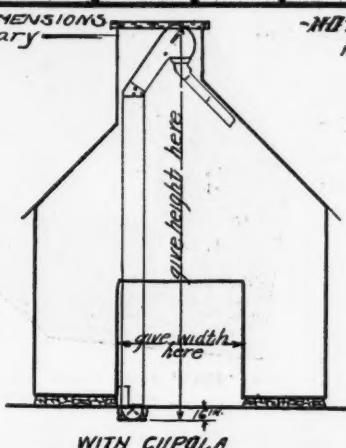
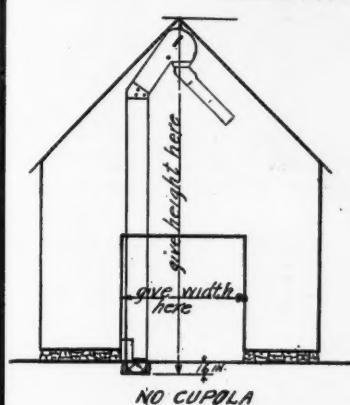
The manufacturers, the United States Mineral Wool Co., 90 West St., New York City, have a very interesting catalog describing the composition and use of this material. They also have many testimonials showing the great saving secured by the use of this material for all insulating uses. Write to them and get complete information concerning mineral wool. They will also send samples on request.

CRIB and GRANARY PLANS FREE

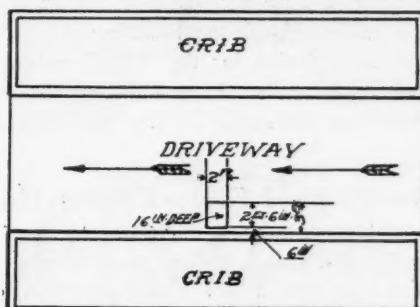
The table below shows a quick and easy way of determining the length Meadows Inside Stationary Cup Elevator necessary for different buildings. Write today for full information. It does not obligate you in any way. See our advertisement, top of page 129, April Issue, of this paper.

DISTANCE FROM RAFTERS TO A POINT 16 INCHES BE- LOW DRIVEWAY FLOOR	WITH OF DRIVEWAY			DISTANCE FROM RAFTERS TO A POINT 16 INCHES BELOW DRIVEWAY FLOOR	WIDTH OF DRIVEWAY		
	10FT.	12FT.	14FT.		10FT.	12FT.	14FT.
22 FEET	23 ft. 10 in.	24 ft. 2 in.	24 ft. 6 in.	34 FEET	35 ft. 10 in.	36 ft. 2 in.	36 ft. 6 in.
24 "	25 ft. 10 in.	26 ft. 2 in.	26 ft. 6 in.	36 "	37 ft. 10 in.	38 ft. 2 in.	38 ft. 6 in.
26 "	27 ft. 10 in.	28 ft. 2 in.	28 ft. 6 in.	38 "	39 ft. 10 in.	40 ft. 2 in.	40 ft. 6 in.
28 "	29 ft. 10 in.	30 ft. 2 in.	30 ft. 6 in.	40 "	41 ft. 10 in.	42 ft. 2 in.	42 ft. 6 in.
30 "	31 ft. 10 in.	32 ft. 2 in.	32 ft. 6 in.	42 "	43 ft. 10 in.	44 ft. 2 in.	44 ft. 6 in.
32 "	33 ft. 10 in.	34 ft. 2 in.	34 ft. 6 in.	44 "	45 ft. 10 in.	46 ft. 2 in.	46 ft. 6 in.

ONLY TWO DIMENSIONS
necessary



NOTE—Although the above table is given in 16th of a foot, lengths, we furnish elevators of any length as ordered



PLAN OF CRIB FOUNDATION

The Meadows Manufacturing Co., Pontiac, Ill.

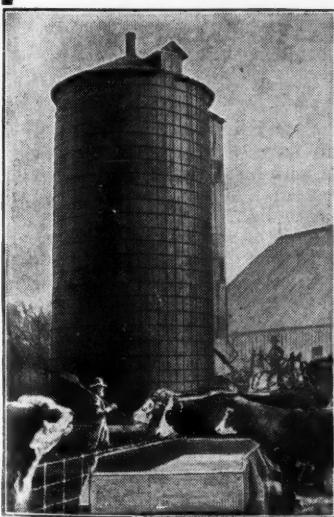
Here's Your Chance To Make Big Profits

Manufacturing and Erecting
Perfection Concrete Stave Silos

The silo that meets every requirement of the farmer. You don't need much capital—any previous experience—or a factory, to make big money right at the start. Easy to erect.

Our liberal proposition is worth writing for.

Write today for terms, territory and full particulars. No competition.



Perfection Concrete Stave Silo Co.
507 Clapp Block

Des Moines, Iowa

A Good Silo Year

Concrete silos will be built during the next few months in greater numbers than ever before. The contractor has an opportunity to deal with farmers in a profitable way. You can't miss it. Grain prices are high, live-stock products are even higher, and the farmer must plan to meet the increased demand. This is not war-talk but silo-sense. The

CONKLIN
Monolithic Silo Molds

the best known equipment for re-enforced circular concrete work, and more particularly silo construction. Fully explained in our book which we send when you ask for it. There is information in this book that every contractor will appreciate.

Conklin Construction Company
750 West Main Street
Hartford Michigan

Standard Drawing Instruments at a Big Reduction

Builders are familiar with the Kolesch architects' and builders' level, and our readers should be interested to know that this company is conducting a sale of some of their drawing instruments. In revising their catalog, they have decided to eliminate some of the numbers of their drawing instruments. To do this, they are offering these numbers at a big reduction from the regular price. All these numbers that are in stock will be disposed of at these low prices, and anyone desiring drawing instruments of a standard make that can be depended upon, will do well to consider this sale.

This sale includes sets of instruments as well as single instruments of various kinds. The quality of these instruments needs no comment as the name of the company conducting the sale is sufficient guarantee.

We suggest that our readers drop a line to the Kolesch & Co., 138 Fulton St., New York, asking for Circular 27 and also for the list of special prices on drawing instruments. It would be well to do this immediately as the supply is, of course, limited.



"Best" Fuel Chutes Save Houses

The old window, with the frame battered to pieces and half the windows broken, through which the coal was put into the cellar, is not used any more by people who like to have their homes look well.

The Sterling Foundry Co., of Sterling, Illinois, have a design for a coal chute that has many distinctive features. It is one of the well known "Best" products. This chute has a glass door which folds back against the house when the



The "Best" Coal Chute with Cast Iron Frame—Steel Tube—Glass Door.

It will certainly pay our readers to write to the Sterling Foundry Co., 8 Ave. A, Sterling, Illinois, and get their new catalog describing this chute and also many other features of this well known, dependable line.

chute is being used. There is a heavy iron screen on the inside of the glass that protects the door against breaking when coal is being thrown in. The door automatically locks itself as soon as it is shut and can be only opened from the inside. A chain is attached to the door and the length of this can be readily extended so that the door may be opened from any part of the coal room. In warm weather a screen can be inserted in the place of the glass and the chute used as a ventilator.

BERLIN

Portable Woodworking Mills

The Berlin heavy duty portable Saw Rig is a combination of rip saw, cross cut saw, dado saw, grooving machine, jointer, jig saw, boring machine, sander and emery wheel with its own power plant so conveniently arranged that it can be moved from job to job in a light spring wagon at no more expense than a carpenter's tool box. It actually does the work of twenty men with one operator and 20 to 50 cents worth of gasoline.

Designed and Built for Durability plus Portability

The Berlin Saw Rig is easily moved from job to job—but strong and rugged enough to withstand the hardest service building contractors may put it to. Frame and main bearings are cast semi-steel, made in one piece without joints. Frame is then supported by two-inch extra heavy pipe legs on wood skids, which makes a very strong, rigid construction. "Berlin" Gasoline engines are four cycle, horizontal water cooled engines and have built-in magnetos, eliminating battery and ignition troubles. These engines are easily started in cold weather and are accessible by simply raising the wooden table. Machines are equipped with highest grade saws, knives and accessories.

Guaranteed for Two Years

All Berlin Saw Rigs are guaranteed against defective workmanship or material for a period of two years. During this time any broken or defective part will be replaced free of charge. Write for detailed specifications and information. The BERLIN Saw Rig is unsurpassed for combined durability and portability.

SCHAEFER MFG. CO.

BERLIN, WIS.

Betsy Ross House
Philadelphia

The Care of a National Landmark

Betsy Ross made the first American flag here in 1777. In 1905, when the house was about to be demolished, it was saved and presented to the city of Philadelphia as a gift from over a million Americans. Philadelphia now preserves the Betsy Ross house for the nation by protecting it against time and weather with paint made of

Dutch Boy White Lead

and pure linseed oil. The same good judgment will preserve and beautify the houses you plan. Specify Dutch Boy White Lead and Dutch Boy Linseed Oil. They can be mixed especially for your houses and tinted any color. Low cost, long wear, best protection are the money-saving and satisfying results.

Ask for folders "B." They include specifications and color chart.

NATIONAL LEAD COMPANY
New York Boston Cincinnati Cleveland
Buffalo Chicago San Francisco St. Louis
John T. Lewis & Bros. Co., Philadelphia
National Lead & Oil Co., Pittsburgh



**Build
Houses
That Save
40 Per Cent
of Coal
Bills**



Residence in course of construction, showing application of Linofelt directly on sheathing boards like ordinary building paper.

Linofelt a house accomplishes that result. Linofelt is an insulating quilt made of flax fibre $\frac{1}{4}$ inch thick, quilt made of Kraft paper. It "goes on" just like building paper. And it takes the place of both back plaster and building paper.

How to
Apply
Lino-
felt

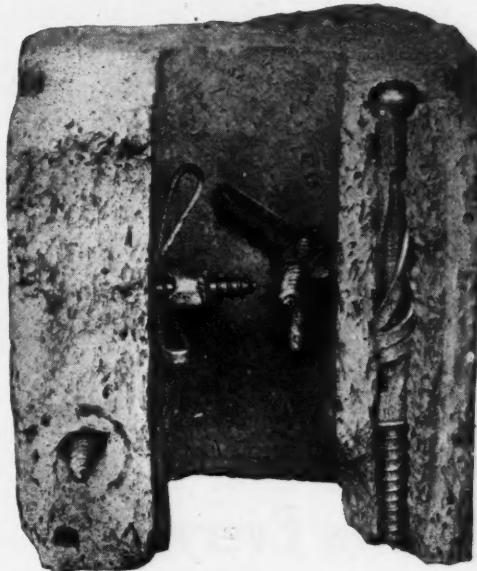
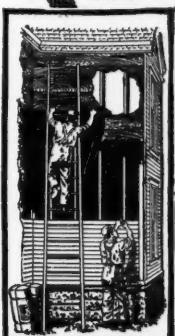
LINO FELT
"Between You and the Weather"
(© 1914, Union Fibre Co., Winona, Minn.)

Vermin-proof, odorless, sanitary. Keeps out the chilly drafts that come in around the door casings, windows and around the base of walls. Keeps cold out in winter—keeps heat out in summer. Can be applied to either new or old buildings.

Send Today for Free Book

Learn how easily Linofelt will help you make warmer more all-the-year-round comfortable buildings. Also learn about LITH INSULATION—the material now used in practically all the creameries and cold storage plants of the Central West. Write today—sure—for the valuable free book "Insulation for Cold Temperatures"—cloth bound.

UNION FIBRE CO.
118 Union St., WINONA, MINN.



TRADE MARK

The Screw-hold with a thousand uses takes right "hold" of hollow tile and concrete—and there it sticks like grim death.

The wall will pull out before Ankyra. Stronger than the wall itself. No matter where you put it—in lath-and-plaster, expanded metal laths, metal window sashes and frames, hollow tile or concrete walls—it is there to stay, and holds the fixture firmly in place. The screws can't work loose but they can be taken out and replaced at will, without losing Bolt. Ankyra is a permanent screw-hold. It can't work loose. The nut is an integral part of the Bolt. Insures the safety of the fixture.

Ankyra combines the principles of the expansion bolt, toggle bolt, and anchor bolt. Made for No. 6, 8, 10, 12, 14, 16 and 18 Wood Screws. Its safety and economy make it invaluable to architects, builders, plumbers, steamfitters, electricians, etc.

Investigate today.

Send Coupon
for Samples
and Booklet

FREE

ANKYRA
MFG. CO.
149 Berkley St.
PHILADELPHIA

Ankyra Mfg. Co.

Philadelphia

Please send without
cost or obligation to
me, samples and booklet
describing Ankyra.

Name.....

Address.....

State.....



Use the Scientific Shingles On Every Job

The house-owner whose home has a Rex-tile roof will always be grateful to the carpenter and builder who recommended the scientific shingles and laid them.

They are weather and time proof. Nailed at the bottom through a turned-under fold, they can't flap, warp or curl. Rain-water can't seep under the edges.

Rex-tile
TRADE MARK

"The Scientific Shingle"

makes a handsomer roof than wooden shingles, slate or tile, and are more economical.

The color is a part of the shingle—will not fade. No painting necessary. Easy to handle. Light weight and smooth.

Rex-tile is an exclusive material sold at one price. Therefore you are not subjected to price-cutting, because the turn-under fold for nailing—at bottom—no flapping or warping—nails perfectly covered—is patented and exclusive.

Write today for free samples, prices, and full information.

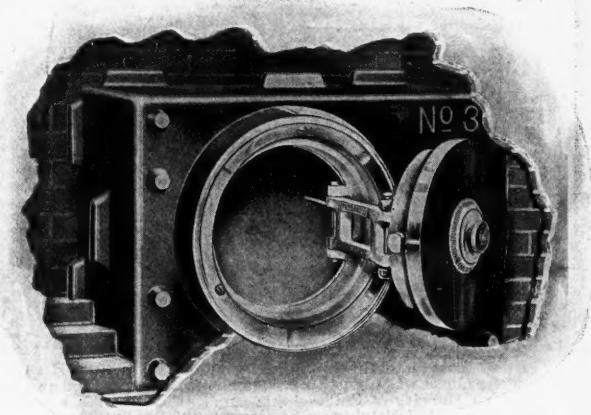
Flintkote Manufacturing Co.

90 Pearl St., Boston, Mass.
659 Peoples' Gas Bldg., Chicago, Ill.

Also manufacturers of Paradux—a waterproof canvas covering for all surfaces on which walking will be done—such as sleeping porches, piazza roofs, roof gardens, balcony roofs, boat decks, etc. Easier to lay than tin or metal—far more durable—requires no special preparation of the surface to be covered. Can be painted any color desired.

A Safety Deposit Box at Home

Every one of our readers has some valuable papers around the house that he wishes were in a safe place. We are not in the habit of betting, but would almost wager that these papers are in a bureau drawer or in a desk somewhere and in case of a fire we would hate to think of the result.



Crane Wall Safe in Brick Wall.

You contractors and builders have the solution of this problem in your own hands. Suggest to the people for whom you are building that they let you build in a wall safe.

The Crane Manufacturing Co., Galesburg, Illinois, make a very fine line of these wall safes. These safes are of various sizes to fit walls of different thickness and have many distinctive features. The wall of the safe is made double with an air space between, which adds greatly to its fire and damp resisting qualities. The outer wall is made of a combination



Absolute Safety for Valuables.

of iron and steel and is said to be one of the toughest materials known. The inner wall is of asbestos lumber, which is fire proof as well as damp proof.

A more detailed description of these wall safes may be obtained from The Crane Manufacturing Company, Galesburg, Illinois. The installation of wall safes is a good, live proposition and we would advise our readers to communicate with this company. They will be pleased to give you all the necessary information.



Overland Building Biggest Auto Plant

The present volume and prosperity of the motor car business is the wonder of the entire business world. Reports from The Willys-Overland Company, manufacturers of the Overland car, show one previous high mark after another successively surpassed.

Although February was the biggest month ever experienced by The Willys-Overland Company up to that time, the volume

Quality

The
Distinguishing
Trade Mark

It means an end to ROOFING EXPENSE, ROOFING DANGER and ROOFING TROUBLES.

When you put it on your buildings you are putting on INSURANCE. Every sheet means "MORE PROTECTION."

Fire, Lightning, Storm, Rain and Wind Proof.

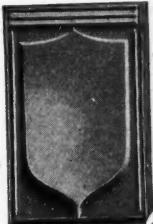
Cheaper than wood Shingles or Slate and 100 per cent better.



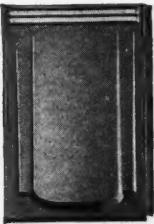
THE MOST BEAUTIFUL ROOF IN THE WORLD.—Ornamental and Lasting.

Many different designs in painted tin, galvanized or copper. Easy to lay, economical, beautiful. If you are a builder and contractor, let us know, for we have a profit-sharing arrangement which we make with builders, and it would pay you to ask us about it.

The Dickleman Manufacturing Co., Department "C" **Forest, Ohio**



THE "SWANEE"
The Southern Favorite. Furnished either in 10"x14" or 14"x20" sizes.



THE "CHIEFTAIN"
The Tile Design. Furnished only in 10"x14" size.

Designs That Satisfy
Material That Lasts Longer
The Construction That is Water-Tight

The rapidly increasing demand for ornamental roofings that are distinctive in design, fire-resisting and durable has popularized metal shingles.

Since the use of Metal Shingles has become so general, the inventive minds have worked out designs that produce splendid architectural effects not possible to secure in any other kind of roofing.

Material for Metal Shingles

Berger Metal Shingles are furnished of galvanized rust-resisting Toncan Metal, galvanized open hearth steel or Terne plate of any standard weight coating—that is a shingle for every roofing need. For choice architectural patterns that are durable and non-leakable as well as easiest to put on, select Berger designs and satisfaction is assured.

Write for our new Shingle Catalog

The Berger Mfg. Co.

The Largest Sheet Metal Manufacturers
Canton, Ohio

Boston
New York

Philadelphia

St. Louis

Minneapolis
San Francisco



GOTHIC TILE

The Best Selling Metal Shingle Ever Made

And the best roof ever put on a building. Fire proof, storm proof, lightning proof. People are waking up to the fact that the roof is the vital part of any building, and the business is going to the dealer who backs his claims with

MONTROSS METAL SHINGLES

The indestructible roofing. They answer every requirement of safety, beauty and service. In addition are economical in price and easily laid. Every Montross Metal Shingle you put on is an advertisement that will bring business to you and you will control it because our selling plan is unique. One man in every section given exclusive territory and placed in business for himself. We estimate and furnish all engineering advice free. Write for information and make yourself independent.

Montross Metal Roofing Co.

102 Erie Street
Camden, N. J.





Several hundred men are working daily preparing the ground for new additions to the Willys-Overland factory, which have been made necessary by that company's rapidly increasing volume of business. As soon as the ground has been filled in, drained and leveled, construction work will be started on two large buildings, one of which will rank with the largest factory structures in the world. The two buildings will add seventeen acres of necessary floor space to the big factory, making a total of 79 acres of floor space in the Toledo plant alone. This, together with the affiliated Overland plants operated in other cities, will aggregate over 100 acres.

of business at the big Toledo factory from the first to the 25th of March exceeded that of the entire month of February.

Between March 1st and March 25th more shipments were made than during the entire previous month and the number of orders received for cars exceeded those of February by more than 1300. During this time orders for Overland cars were received at the rate of 2500 per week. The total number was exactly double that received during the same period of March, 1914.

In spite of the fact that more cars are being shipped daily from the Overland factory than ever before, orders have been showing a steady gain on shipments. In an effort to make the supply meet the demand the Overland plant is working a full capacity, employing 8,600 men and keeping many of the departments on a continuous twenty-four hour schedule.

The accompanying photograph shows their new factory site on which will be erected the largest building in the world devoted solely to the manufacture of automobiles.

OCEANS OF PRAISE have come from the users of MF ROOFING TIN



C.B. OPEN HEARTH
3/2 POUNDS COATING



C.B. OPEN HEARTH
3/2 POUNDS COATING

Fearing neither wind, storm nor rust, and due to its unexcelled durability, MF ROOFING TIN is truly the "dreadnought" of the metal world. Be sure to specify MF ROOFING TIN.

Write for interesting free booklet "Copper Bearing Steel—A Discussion on Corrosion"

American Sheet and Tin Plate Company

General Offices: Frick Building, Pittsburgh, Pa.

Chicago	Cincinnati	Denver	Detroit	New Orleans	New York	Philadelphia	Pittsburgh	St. Louis
Export Representatives: UNITED STATES STEEL PRODUCTS COMPANY, New York City								
Pacific Coast Representatives: UNITED STATES STEEL PRODUCTS COMPANY, San Francisco, Los Angeles, Portland, Seattle								

DISTRICT SALES OFFICES:



Model Barn of Eudowood Sanitarium, Towson, Maryland,
Arthur West, Builder, Roofed with

Hudson Asphalt Shingles

Hudson Asphalt Shingles are surfaced with Red or Green Slate in their natural unfading colors. No painting or staining needed. They add beauty and durability to any building. Leakproof and Fire-resisting.

Protection Brand Roofing

For Barns, Stables, Factory Buildings, etc. Gravel or Sand Surfaced. Pat. Nov. 18, 1902. Has 6-inch lap, with all nails covered. Leaks at the joints are impossible.

Hudson Brand Asphalt Felts

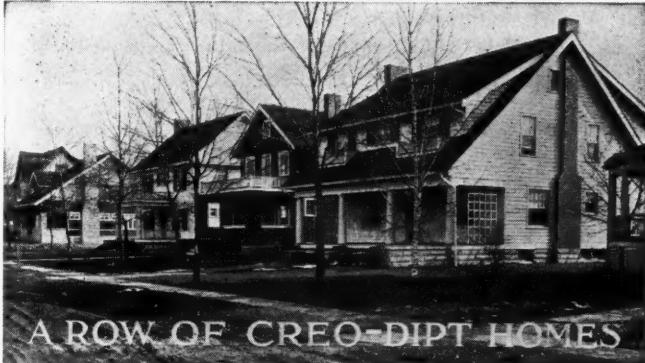
For sheathing purposes. They keep buildings warm and dry and reduce coal bills.

Dealers and Builders handling Hudson Asphalt Roofing Products satisfy their customers and increase their business.

Samples sent free postpaid on request.

ASPHALT READY ROOFING CO.

Room 453 9 Church St., NEW YORK



A ROW OF CREO-DIPT HOMES

"CREO-DIPT" Shingles on roofs and side walls of homes on Somerton Road, Cleveland, Ohio, Arthur N. Oviatt, Architect.

Pleasing Contrasts Made Possible by Different Color Shade for which we supply

"CREO-DIPT" STAINED SHINGLES

17 Grades. 16, 18, 24-inch. 30 Different Colors. They come in bundles ready to lay.

We select best Cedar Shingles and by our special process preserve them in Creosote and Stain them any color desired. The result is quality in both shingles and stain, for which we are responsible. They last twice as long as brush-coated shingles—save time, muss and expense of staining on the job. Proof against dry-rot, worms, weather and fading out in streaks.

Write today for Sample Colors on wood and book showing "Creo-Dipt" Houses in all parts of the country by prominent architects.

One trial order will convince you.

STANDARD STAINED SHINGLE CO.
1028 Oliver Street No. Tonawanda, N. Y.

(Shipments prompt. Branch Factory in Chicago for Western Trade.)



LET me send you our Building Material Catalog showing 8000 price bargains on building material and also our Plan Book showing views and floor plans of 50 modern Houses and Bungalows. They will prove you can build, remodel or repair for much less than you expected. We ship everything everywhere in the way of high grade lumber, flooring, roofing, doors, windows, storm sash, moldings, porch work, screens, hotbeds, building hardware, paints, wall-board, plumbing, heating and water supply outfit, cement machinery and interior woodwork. All at Wholesale Prices Direct to You. Quality, safe delivery and satisfaction absolutely guaranteed. Building Material Catalog Is Free.



Material Complete
for Houses from
\$398.00 up

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for every
purpose are
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Our Big Free
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shows our
full line of
Colonades
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Illustrated
PLAN BOOK

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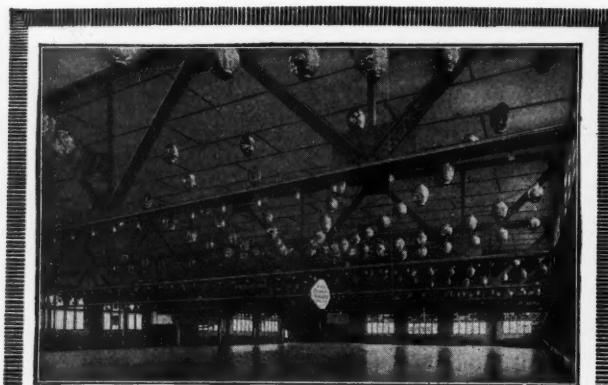
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Supply Company
1422 W. 37th Street
Chicago, Ill.

Please send me your Free
Building Material Catalog.
(If the Plan Book is wanted,
send 10¢ for mailing.)



The Palladium Skating Rink, St. Louis, Mo.

CAREY
Ceil-Board
 SUPERSEDES PLASTER FOR WALLS AND CEILINGS

28,000 square feet of **Ceil Board** were used on the ceiling of the skating rink shown above. This is illustrative of thousands of **Ceil Board** jobs that can be had by the wide-awake contracting carpenter if he is familiar with this modern wall covering.

That **Ceil Board** is being specified by more architects than any other wall-board means something. It means that architects and contractors who are directly responsible to building owners realize that the scientific construction of **Ceil Board** and the reputation of its makers warrant their recommendation.

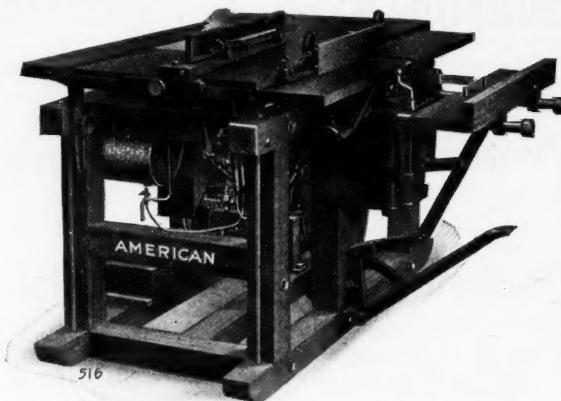
Get samples and full information for the Spring work.

THE PHILIP CAREY COMPANY
 General Offices 1021 Wayne Ave., Lockland, Cincinnati, Ohio
 OFFICES & WAREHOUSES IN PRINCIPAL CITIES.

Improved "American" Portable Variety Wood-Worker

Steady progress toward a fuller realization of the term "variety" has marked the "American" contractor's portable variety wood-worker since its introduction, some three or four years ago. Beginning—one might say—as a combination saw bench, this machine has had new functions added from year to year until today it is indeed "a portable planing mill to be taken on the job."

The latest feature to be added, and the distinctive element in the 1915 "American" model, is a hollow chisel mortiser now regularly furnished as a part of the standard equipment. This is a thoroughly practical device, using bits from $\frac{3}{8}$ to $\frac{3}{4}$ inch, and cutting a clean, smooth mortise with square corners and



Improved "American" Portable Variety Wood-Worker.

accurate as to size. The table has a vertical adjustment of $3\frac{1}{2}$ inches by means of a hand-screw and a travel of 4 inches in line with the bit. A powerful foot lever provides the feed of the work to the bit, with a coil spring for the return of the table.

This attachment can be used for ordinary boring by removing the mortising chisel and substituting the regular boring bit. When so used, the travel of the table can be increased to 6 inches by changing the position of a pin.

The jig saw attachment continues to be furnished with the "American" wood-worker, capable of sawing stock up to 2 inches thick to the center of a 44-inch circle. It makes the "American" a four-man machine, as four operators can work at one time on one machine at as many different jobs without interfering with one another. When not needed, the jig saw attachment can be removed in 5 minutes.

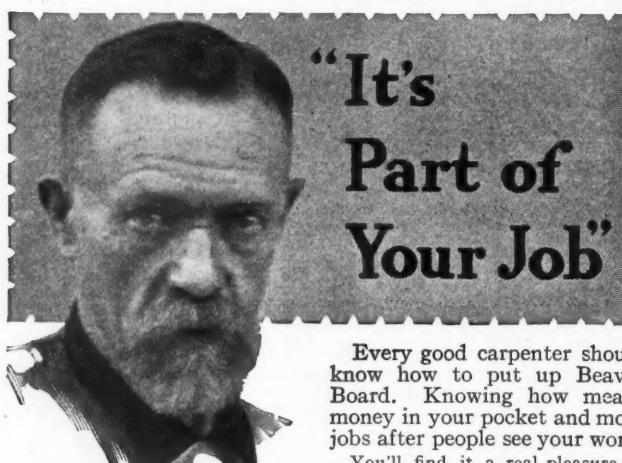
The other functions of the "American" wood-worker include: A rip, cut-off and mitre saw; a dado, gaining, grooving, rabbetting and tenoning machine; a jointer, planer, matcher and moulder; a boring machine; an emery grinder, and a disk and drum sander. The machine is furnished with gasoline engine or electric motor built in. Or it can be supplied with countershaft and extended skids for independent power.

The American Saw Mill Machinery Co., 80 Main Street, Hackettstown, N. J., have just issued a new Bulletin No. 57 on the "American" wood-worker, profusely illustrating the latest machine and the work it does.



KisselKars at the Fair

The automobile show held in connection with the Panama-Pacific Exposition promises to be at least as important to the trade as the national shows at New York and Chicago. Nearly every prominent car is represented and some of the exhibits are unusually complete and attractive. The Kissel-Kar, which is represented on the coast by the Pacific Kissel-Kar Branch, a \$500,000 corporation, has one of the most striking booths in the Transportation Building. It features a handsome KisselKar 42-Six chassis and the popular All-Year Car.



Look for This Trade-Mark

It is stamped on the back of every panel of Beaver Board and insures you against flimsy imitations.



The Beaver Board Companies

United States: 220 Beaver Road, Buffalo, N. Y.
 Canada: 420 Wall St., Beaverdale, Ottawa
 Great Britain: 4 Southampton Row, London, W.C.
 Branches in Baltimore, Boston, Chicago, Cleveland, Detroit, Indianapolis, Kansas City, Minneapolis, New York, Omaha, Philadelphia, San Francisco.

BEAVER BOARD

WALLS & CEILINGS

**There's Just One
"Wood-Core" Wall Board**

Its construction is shown by the border of this advertisement. Selected kiln-dried wood slats are laid edge to edge for the core. Heavy, specially prepared paper is cemented onto both sides, under enormous pressure. This patented construction makes



Trade Mark Registered U. S. Patent Office, No. 94745

the strongest wall lining in use. It will materially strengthen and stiffen a frame house, as compared with lath and plaster or other wall covering.

Other wall boards are often wrongly called Compo-Board, and sold as such. Be sure you buy and use *real* Compo-Board — our trademark, as shown above, is on every piece. It's sold almost everywhere.

Northwestern Compo-
Board Company
5777 Lyndale Ave. N.
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**Every Carpenter and Builder Should
Have a Bundle or Two of Plastergon
on Hand All the Time**

Suppose you get a contract for replacing a ceiling that has just fallen and you tell your customer it will be 3 days before you have the material, do you think he will wait?

Or suppose you have to partition off a room or two—either permanent or temporary—and you greet your customer with apologies for a 3-day delay, will HE wait?

The chances are 10 to 1 against you.

PLASTERGON
TREATED
WOOD FIBRE
WALL-BOARD

Then why depend on the dealer to keep it for you? He's depending on the jobber and the jobber is depending on us.

Before you lose another dollar, get our samples, catalogues and prices and handle this business for yourself. A card addressed to us brings it all free, and without obligation.

Plastergon Wall-Board Company
101 Fillmore Avenue Tonawanda, New York



**Defies Any Kind
of Weather**

When a building of concrete or stucco is painted with

**Bay State
Brick and Cement
Coating**

it is absolutely weatherproof. Two coats are enough—and it is permanent.

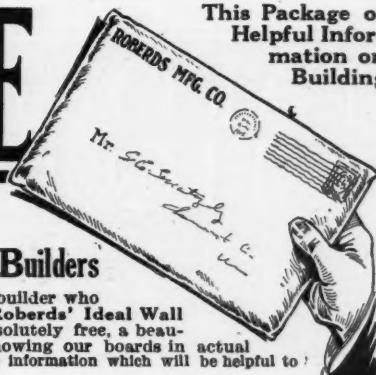
Another big point: Bay State Brick and Cement Coating enables you to change the monotonous blue-gray of cement into beautiful tints without losing the distinctive texture of concrete or stucco. Also preferred as an undercoating for enamel and as an interior finish.

Write for sample can and free booklet 30

Wadsworth, Howland & Co., Inc.
Paint and Varnish Makers
Boston, Mass.

This Package of
Helpful Infor-
mation on
Building

FREE



**TO ALL
Carpenters and Builders**

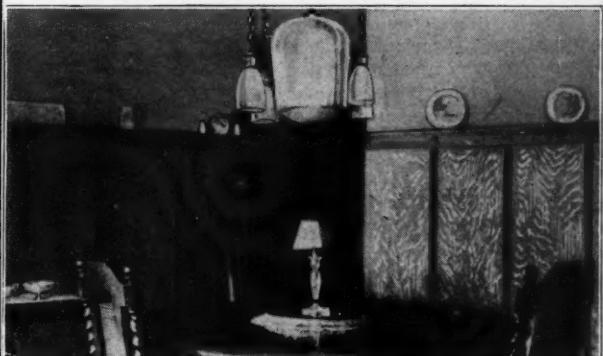
Every carpenter and builder who writes for samples of Roberds' Ideal Wall Board, will be given absolutely free, a beautifully designed panel showing our boards in actual colors together with useful information which will be helpful to you in your daily work.

ROBERDS' IDEAL WALL BOARD

"The Guaranteed Moisture Proof Wall Board"

Don't delay—Write today for the Free Package—it's yours for the asking; also samples of our wall boards in gray, tan, mission and quarter-sawed oak.

THE ROBERDS MFG. CO., 100 Railroad Ave., Marion, Ind.



Roberds' Oak Wall Board used in paneled dining room in residence of Arthur G. Wade, Oak Park, Ill.

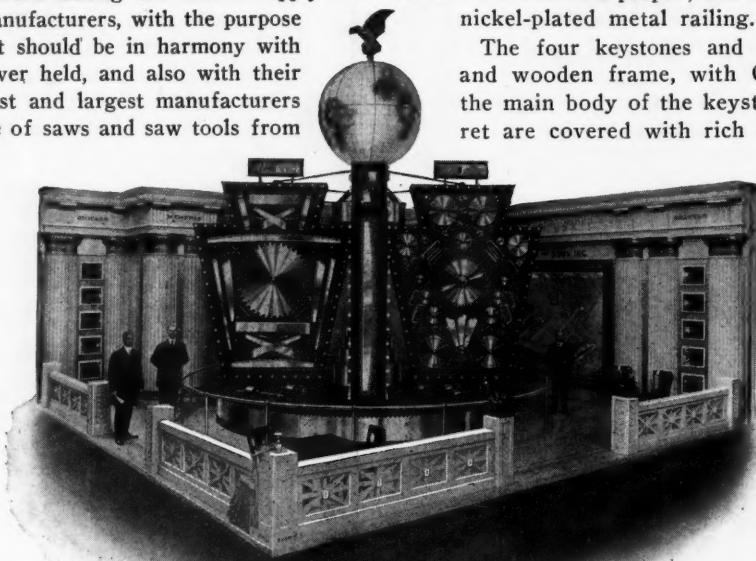
Disston at the Pan.-Pac. Fair

Henry Disston & Sons, Incorporated, early recognized the importance and value of the Panama-Pacific Exposition to the business world, and were among the first to apply for space in the Palace of Manufacturers, with the purpose of making an exhibit that should be in harmony with the grandest exposition ever held, and also with their own standing as the oldest and largest manufacturers in the world of a full line of saws and saw tools from raw material to finished product.

Their magnificent display, now installed in a fine corner location on the central aisle, Palace of Manufacturers, indicates that they have successfully carried out their intention with great credit to themselves and to the Exposition.

For the benefit of those who may not enjoy the privilege of visiting the Jewel City and the Diamond Jubilee Disston Exhibit, we will describe the exhibit in a general way.

A set of balanced scales on a keystone, signifying justice to purchasers of Disston products, is the trade mark of this firm and the keystone is made the motif of the exhibit schemes. Four immense keystones, 12 feet 6 inches high by 10 feet 6 inches wide at the broadest part, and 2 feet thick,



Disston Exhibit at San Francisco Fair.

are mounted on a revolving turret 20 feet in diameter, which stands 2 feet above an inlaid mosaic floor. The turret and four keystones on which the saws and tools are mounted constitute the exhibit proper; this is encircled by a handsome nickel-plated metal railing.

The four keystones and turret are made of iron and wooden frame, with California redwood trim, the main body of the keystones and top of the turret are covered with rich colored felt, and on the

faces and edges of the keystone and in a pyramid in the center of turret between the inner edges of the keystones, are shown saws of every description from the smallest to the largest commercial use.

In addition to the saws and saw tools and files, an extensive line of kindred tools, such as plumbs and levels, bricklayers' and plasterers' trowels, squares, bevels, mortise gauges, screw-driv-

ers, machine knives, barker, chipper, moulding, leather splitting, paper trimming, cane and cloth knives and machetes are also displayed.

In the center of three of the keystones there is a revolving disc, 60 inches or larger, on which various saws and tools are symmetrically arranged.

**How to get the Parquetry Floor Jobs---**

Everybody recognizes **Parquetry** as the most desirable floor!

The owner, of course, wants **Parquetry** that will give continuous satisfaction and the price is an important consideration.

Impress on your customer that you use only the best **Parquetry** made—and that this **Parquetry** is yet the most moderately priced.

Lay **FEDERAL Parquetry**—a recognized standard. Finest White Oak, accurately milled, perfectly matched and absolutely uniform. Easy to lay, also.

We send directions with each shipment, with drawings to scale, where requested.

Write for Special Circular No. 121.

FEDERAL PARQUETRYMFG. CO., Inc.

Offices: 175 5th Ave., New York

Mills: Lexington, Kentucky

Agents wanted wherever we are not now represented

A Wood Floor? Surely

Knowing that wood makes the best floor, the question of the **kind** to use is one of vital concern to the contractor.

Floor Value factors are:
Appearance, Service, Cost

Appearance—**Maple, Beech and Birch** retain their physically perfect appearance indefinitely. With stains, dyes, wax and varnish the exact tone desired may be secured, and that tone will be retained so long as the floors receive ordinary care.

Service—**Maple, Beech and Birch Floors** not only give the greatest length of service, but the most generally satisfactory service of any floor. No other flooring material contests its proven superiority.

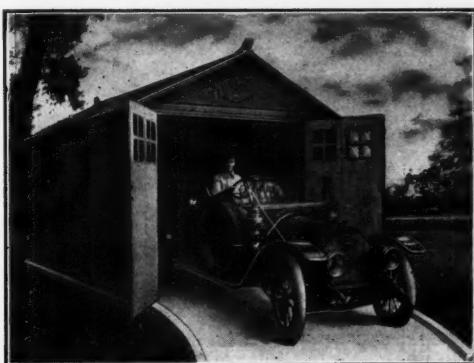
Cost—The cost is moderate. **Maple, Beech and Birch** are not the **cheapest wood floors** that can be laid—unless their cost is **gaged by the service and satisfaction they give**—on which basis they are the most economical floors on the market.

Your Flooring Problem Solved, a treatise of the values of **Maple, Beech and Birch floors**, and of the broader question: Proper **Stock Exchange Bldg. Floors**.

Maple Flooring Manufacturers Association
CHICAGO, ILL.

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YOU'RE MISSING A BET
MR. CARPENTER
IF YOU ARE PASSING UP THE
METAL SHELTER GAME



IT'S THE BEST BET YET

The METAL SHELTER Agency gets you more business, more customers, more work for your men, more money for you, better and quicker results, and—get this—

A REAL BUSINESS OF YOUR OWN

Don't wait. Get the agency for Metal Shelter Garages, Cottages, Bungalows, Stores, etc., before the other fellow beats you to it. You can sell 'em, and it's a cinch to set 'em up—a building a day. THINK! Investigation costs you nothing. Write right now.

Metal Shelter Co., Inc.

Whitehall Bldg. -- New York City



Before you lay your first roofing job, put on your first porch covering, or re-lay any old roofs this Spring

INVESTIGATE CON-SER-TEX

It costs very little. It is easy to lay, and adheres tightly to the surface, giving the porch, the roof, piazza, or sleeping balcony a neat, clean, trim look. It is the ideal covering for the garage roof and outhouses.

CON-SER-TEX is a scientifically treated cotton duck which is waterproof, and will not mildew, absorb moisture, nor shrink.

Write for generous sample today.

William L. Barrell Company
8 Thomas Street -- New York

Chicago Distributor:
Geo. B. Carpenter & Co.
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California Distributor:
Waterhouse & Price Co.
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When You Want —
Tiles and Mosaics
Write

**Artistic Designs and
Superior Quality**

For
Bathrooms, Kitchens, Hallways
Etc.

We carry a most complete line of Ceramic Mosaic Floor Tile and Sanitary Glazed Wall Tile for every purpose. Our designs are unusually artistic and correctly executed. The quality is Lorenzen—the best guarantee a builder can get. You can depend upon our prices being right.

Let us estimate on your next job or furnish you with an original design. At any rate, write for our Catalog No. 51 on Tiles and Mosaics. A postal will bring it and it is invaluable for your files.

Our large catalog "Vogue in Fire Places" is now ready, the most comprehensive and complete catalog ever issued on Fire Places in Tile, Brick and Wood. Write for it.

*Send for our Discount Proposition to
Carpenters and Builders*

Chas. F. Lorenzen & Co.
103 Washington St. CHICAGO

**BAYONNE
ROOF AND DECK
CLOTH**

Preferable
to
Metal

Besides its obvious advantages over metal and prepared roofings for porch decks, sleeping verandas, open air and bathing pavilions, etc., BAYONNE is also generally preferred for general roofing purposes.

Says N. E. Russell, Springfield, Mass.—

"I prefer BAYONNE Roof and Deck Cloth to tin, or even copper, as it does not contract and expand the way these metals do. On that account it does not crystallize and break as is the case with metals."

Another advantage, BAYONNE does not have to be "set" in wet paint. Can be laid right on the dry boards and makes a very neat and easy job.

*Write for Sample Book "N" with
prices and laying instructions*

JOHN BOYLE & COMPANY, Inc.

112-114 Duane St. New York City
70-72 Reade St.

Branch House: 202-204 Market St., St. Louis.

50% More Heat *The New Hero*

The Furnace with the greatest amount of direct heating surface, due to its corrugated dome. These corrugations increase the heating efficiency fully 50%. All castings heavy and substantial and few joints. The immense fire dome and feed section being cast in one piece.

If you have your customers best interests at heart specify and install these **New Hero Furnaces**. Results will tell.



Liberal Commissions to Contractors and Builders

Let's get together and both profit by it. We have high grade heating plants, and seek your co-operation. Our proposition is unusually attractive. Get in touch with us.

Charles Smith Co.
57 W. Lake St.
Chicago, Ill.

FREE A Hoist for a Name

Contest Open to All Contractors

We've figured it out that you men on the job and with practical experience would be the best men to suggest an appropriate name for our Improved Money-saving Material Hoist, and so to the Contractor sending in the best name we will present absolutely free one of our Hoists. Think of it, a valuable Hoist for a few minutes brain work! Get busy!!

Send for Pictures and full Information about this Hoist, study every detail and individual point, then originate a name and send it in. Everybody has an equal chance. The name of the winner will appear in the July issue of this magazine. It might be you. Write now for full information and pictures of the Hoist.

H. B. Sackett
Screen & Chute Co.
Main Office and Warehouse
1683 Elston Avenue
CHICAGO
Branch Warehouse
197 Medford Street
CHARLESTOWN, MASS.



On the faces of the other five keystones will be found all kinds of hand and power-driven saws for cutting wood, metal, ivory, bone, fibre and other compositions.

These saws range in size as well as in pattern and use, embracing hand and narrow metal cutting band saws. Premier armor plate cutting saws, various pattern metal cutting saws, all kinds of wood-cutting saws, from the long cross-cut saws that are used in felling the monarchs of the forests to the largest band and circular saws that are used for reducing logs to lumber and shingles.

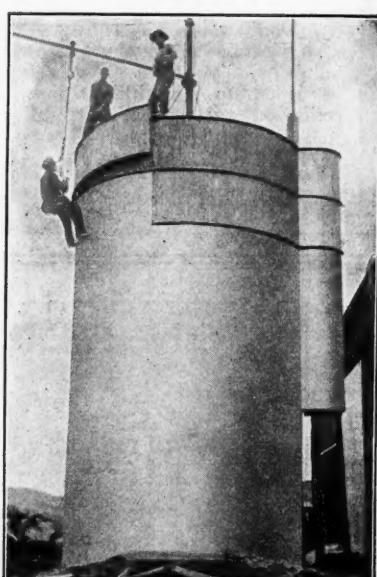
Above the four keystones, in the form of a canopy, is a revolving, illuminated, leaded glass globe of the world, 7 feet in diameter, on which the different countries and hemispheres are distinguished by different colors and surmounted by a large golden American eagle bearing a scroll, "Quality Tells."

A cordial invitation is extended to all by Henry Disston & Sons to visit this exhibit at the intersection of Avenue C and Sixth street, Palace of Manufacturers, Panama-Pacific International Exposition, at San Francisco.



Speed in Silo Construction

Some farmers have objected to concrete silos because of the time required for constructing one. The Conklin Construction Co., 750 West Main St., Hartford, Mich., have been able, according to all reports, to eliminate this feature by the use of their silo forms. These forms consist of two circles or rings, either 3 or 4 feet high. Each ring is divided into segments weighing about 145 pounds each, so as to provide ease in handling. There are both inside and outside rings and the spacing is taken care of by steel mold spacers. The apparatus is very strong and carries its own scaffolding, which is automatically raised by two jacks on the center mast.



Conklin Forms in Use.

The re-enforcing is best taken care of with triangular mesh woven wire, the manufacturers say. This furnishes plenty of steel area for tension stresses and the cross wires will prevent all temperature cracks.

Another feature of the Conklin silo equipment has to do with the construction of water tanks on the top of the silo. This will provide water under pressure for use about the farm. The Conklin equipment is particularly well adapted to handle this feature.

The manufacturers claim that four men can build 8 feet of silo each day and that this speed, which is very good, has often been improved upon.

Contractors will find it worth their while to investigate this equipment, as it has many advantages for this form of construction. Write to the Conklin Construction Co., 750 West Main St., Hartford, Mich., and get their literature describing their equipment for re-enforced circular concrete work. This method of construction should be familiar to all contractors and builders.



Hot Water Comforts

One Builder
Builds and Sells Over 600
Houses with Electric Weld Combination Boiler
and Gas Water Heater Installed.

And says—that the Electric Weld Combination Boiler and Gas Water Heater is an asset to the builder who wishes to make quick sale and solid comfort to the purchaser.

Don't assume that you can't afford to install an Automatic Gas Water Heater in your new operation. Ask for our special builders' proposition.

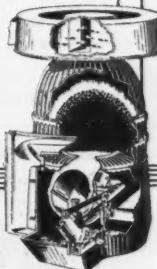
Another proposition which the up-to-date builder cannot afford to overlook is the Modern Automatic Control, Distant Lighter and Timer. Enables you to put a Non-Automatic Gas Water Heater in the basement and light it from the bathroom or kitchen. Automatically extinguishes the heater at the end of any given period. Prevents accidents, saves gas and provides the convenience which home buyers nowadays demand.

Get our proposition today. Keep ahead of your competitor. Our Guarantee is your Protection.

Gas Appliance Corporation
1210 Arch Street Philadelphia, Pa.

Sales	Profit	Satisfaction
-------	--------	--------------

It Pays You In 3 Ways



The New-Feed UNDERFEED

There is three-fold profit and prestige in handling the Williamson New-Feed UNDERFEED Furnace. Your sales increase. So do your profits. But, what is most important, your work advertises you and boosts for you through long after years of satisfaction to the user.

Sales and profit are fine things. But when on top of them you can win added prestige, and more trade, you are bound to see your business grow and grow.

It will certainly pay you to investigate the New-Feed UNDERFEED Furnace, the greatest advance in all modern heating equipment. Thirty thousand users testify to the success of the UNDERFEED principle. Where the New-Feed is properly installed and operated, a saving in coal bills of from $\frac{1}{2}$ to $\frac{2}{3}$ is GUARANTEED.

WILLIAMSON CUT COAL BILLS
NEW-FEED UNDERFEED
Furnaces and Boilers $\frac{1}{2}$ to $\frac{2}{3}$

WE HELP YOU SELL AND INSTALL

We work with you all the time. We help you with our big advertising campaign in all the foremost national publications. We will furnish complete heating plans and exact specifications upon request. Inquiries received from your territory through our advertising will be turned over to you, as well as followed up by us to your own direct advantage.

Some very interesting and profitable information awaits you. Let us send it to you. Simply use the attached coupon. Sending the attached coupon costs you nothing—Involves no obligation on your part.

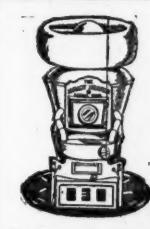
First come, first served, will be the rule in allotting exclusive territories that are still open. So write now—right now. Use the coupon.

The WILLIAMSON HEATER CO.

(Formerly the Peck-Williamson Co.)
217 Fifth Ave., Cincinnati, Ohio

Get These
Business
Boosting
Facts

NOW



BE OUR AGENT—

Builders and Contractors can make good money acting as our agents. You can save the buyer 30% in Fuel Bills. Why not sell

Jahant Down Draft Furnaces
On 360 Days' Trial

In your business you have the opportunity to make the sales. Jahant Down Draft Furnaces have a record for merit behind them. You are selling a first class article at a saving to your customer.

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The Jahant Heating Co., 300 Steiner Ave., AKRON, OHIO

HOT-WATER HEATING



For Old
or New
Houses



We pay freight

Get Our
Estimate On
Your Next Job

**BIG
BOOK
FREE**

Profit for Contractors

Our steel boilers and piping systems "cut-to-fit" each job give contractors extra profit and enable them to install the best system made. Ask about our methods.

Andrews Heating Company
1470 Heating Bldg. Minneapolis, Minn.

The Williamson Heater Co.,
217 Fifth Ave., Cincinnati, O.

Send me a copy of "Money-Making Sales Plans for UNDERFEED Dealers" and full details of your "Exclusive Sales Rights proposition." This request is to involve no obligation on my part.

Name.....

Address.....

Business.....

Originality Wins in an Old Overworked Field

"The name is familiar but I have always associated it with plow points and other agricultural tools," remarked the farmer boy business man on meeting Mr. Clarence E. Bement, Sec'y and Mgr. of the Novo Engine Company.

"And rightly so," rejoined Mr. Bement, one of the sons of that old firm, E. Bement & Sons, famous foundry men, of which Mr. C. E. Bement's father was the pioneer.

At one time E. Bement & Sons made more castings, especially points for plows, than any other firm in America.

In the old foundry, Mr. Bement learned, first hand, among the molds and ladles, all that any man could learn about castings. And under stern masters, too, men who had reputations for making the "best" to sustain.

Thus in 1906, when Mr. Bement entered the gasoline engine field, he introduced a new idea into gas engine manufacture.

He knew very little about gasoline engines, but he realized the importance of casting the component parts of an engine



Clarence E. Bement.

in such a way that the ruggedness, endurance and real efficiency would be insured.

In order to make an engine that would do justice to the material that went into it it was essential that the design be correct in every detail.

Mr. H. J. Holmes was an expert gas engineer. To him Mr. Bement said, "Design me a gasoline engine, a better gasoline engine, one built on the right principles, and I will make it the best gasoline engine known. I will make an engine that will enjoy the highest reputation for reliability, endurance and ruggedness."

Mr. Bement, like all successful executives, knew how to judge men, and although he, himself, did not know much about gasoline engines, he picked a man who did. Mr. Holmes designed an engine that is totally new in appearance and operation—Novo—different from all other gasoline engines.

With the design approved, Mr. Bement turned all his powers upon the castings. Price was forgotten. Mr. Bement was satisfied with nothing that did not measure up to his earlier conceptions of the best castings.

As a result he had an engine a little higher in price than other engines, at a time when price cutting competition was cutting the heart out of engine manufacturers.

But Mr. Bement was good for a second original idea in gas engine manufacturing. He cast a scarcely regretful glance over the farm field and began a still hunt for a new outlet for Novo engines. He found an undeveloped market among contractors, engineers and manufacturers of farm machinery.

Perhaps because this field was the most difficult to reach it had hitherto been undeveloped. But Mr. Bement believed in the Novo design, he believed in his own castings. He had been fortunate in adding to his organization a man whose reputation for promptness, precision and accuracy has never been excelled by any factory foreman. This man, Mr. Erick

Explain!

To Your Customers the Convenience and Many Advantages of the

CANTON COAL CHUTE

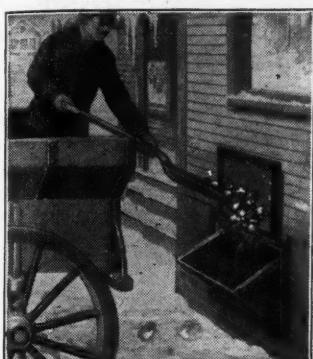
They readily appreciate it and consider its small cost money well spent. Every building to be modern needs a Coal Chute, it eliminates many nuisances and troubles such as battered foundations, marred walks, broken windows, and dirtied lawns. A Coal Chute adds to the selling value of any building and its value as a preserver of the building cannot be estimated.

Canton Chutes Are Well-Made

They are heavy and durable, built to outlast the building and defy burglars. They are also built so as to be most convenient to the owner, locking on the inside or the outside.

Special Prices to Builders—We offer Canton Coal Chutes to Contractors and Builders at a big discount, making it profitable for you to specify and install them. We also manufacture a complete line of Builders' Iron Work at most reasonable prices. Write us for our Coal Chute Booklet B-2 and Builders' Iron Work Catalogue.

CANTON FOUNDRY & MACHINE CO.
CANTON, OHIO



Majestic Coal Chutes

*For Residences, Hotels, Apartments, Office Buildings
Keep the Building and Grounds Clean*

Thousands in Use—Indorsed by Architects and Builders

The Majestic Coal Chute is made extra durable, and will outlast the building. It has a heavy steel body—cast-iron door frame and boiler plate hopper. When open, the hopper comes out automatically, catching all the coal. When chute is closed it sets flush with the foundation. It has a glass door, giving good light to the basement. It locks from the inside and is absolutely burglar-proof.

Send for New Catalog and Prices

THE MAJESTIC COMPANY 505 Erie Street HUNTINGTON, IND.
The Galt Stove and Furnace Co., Galt, Ontario, Can.

The "BEST" FUEL CHUTE

GLASS OR SOLID DOOR



The "BEST" Fuel Chute is insurance against marring of your building. It is made with either glass or solid door. Both are absolutely burglar-proof. When chute is open, heavy screen protects glass from breakage. In warm weather glass can be removed and it serves as a Ventilator, the "BEST" is neat in design and looks well on any building.

Our New Catalogue is ready, illustrating and describing the complete "BEST" Line of Cast Iron Hardware, consisting of Hog Waterers, Chimney Caps and Revolving Chimney Tops, Coal Chutes, Cleanout Doors, Cess Pools, Cistern and Coal Hole Covers, Stud Sockets, Pump Stands and Folding Step Ladder Stools. This Catalogue will be sent Free on request. Write for it.

STERLING FOUNDRY CO., 8 Ave. A, Sterling, Ill.

THE
B
E
S
T
L
I
N
E



The "Ottomatic" Coal Chute

Patented Sept. 15, 1914

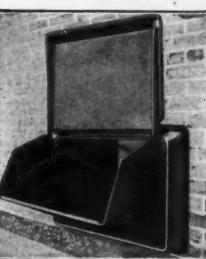
Fire Proof-Burglar Proof-Fool Proof

Best—Indestructible—the One Operation Chute—Locked in Both Positions.

No. 1, 17x24", wt. 100 lbs... \$12.00
No. 2, 22x33", wt. 150 lbs... 17.00

CAN BE PUT IN OLD OR
NEW BUILDING
Special Discount to Agents

THE MAXIMILIAN CO.
344 Monadnock Block Chicago, Ill.



If You Build Buy Own

Be up to date and have the world's best

The Window Chute

for your coal bin.

Thousands in Use

The Very Best

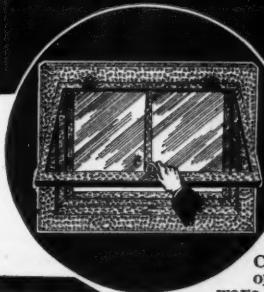
Write for Booklet C.



Holland Furnace Company
Holland, Mich.

World's Largest Direct Installers of Furnaces.

Put Chief Everlasting Windows In That Cellar



They will please the man you're building for better than any other type of window you could install. They're the modern cellar window—the solution of the window problem for the man who wants window satisfaction in service.

Built of steel and in complete units—casing and hinged window—Chief Cellar Windows leave no chance open for window troubles. They always open and close easily, leave no open

cracks and are absolutely unaffected by the weather.

Leak Proof—Rot Proof—Rust Proof

Chief Cellar Windows can't leak, rot or rust. They are enduring—good for a lifetime of service. They have every good quality of the old-fashioned, wooden window with the added advantage of steel construction.

These windows are easy to install, cost no more than wooden windows and are worth three times as much. They give real service—permanent, satisfaction-giving service. There's nothing to wear out about them and they can't shrink or swell and stick in the casing.

Satisfy your customers with Chief Windows. They'll all want them when they see them and there's profit for you in selling and installing these modern windows.

Write us today for full description and prices.

SCHAUGER &

JOHNSON

430 Walnut St.
Atlantic, Iowa



WAGNER

Ever-Tight Trolley Track

New—Different—Better

No brackets—track is forced up tight to building by lag screws. No chance for rain or snow to drive in between track and building. Completely protects hangers and top of door. Nothing else like it on the market—nothing so near to trolley track perfection. Absolutely bird-proof. Impossible for door to come off.

All Wagner Trolley Tracks are made of stiff high carbon steel—extra strong and durable.

Write for Circular

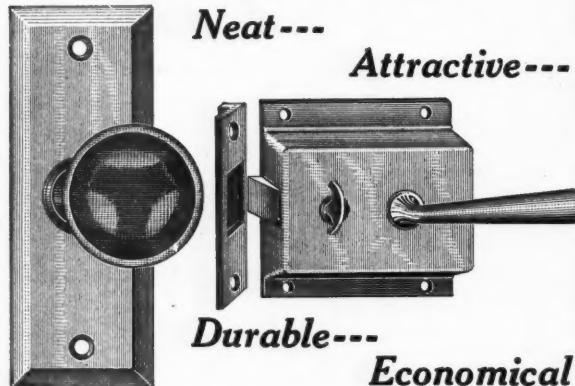
showing full line of Wagner Door Hangers and Trolley Tracks for doors of all sizes and weights. The better hardware dealers sell Wagner Hangers and Tracks. If yours does not, we'll fill your order direct.

Wagner Mfg. Co.
Dept. F Cedar Falls, Iowa

Wrought Steel Rim Latch No. 129

Neat---

Attractive---



Durable---

Economical

A perfect working, handsomely plated, steel latch at a low price.

Gives perfect satisfaction. Not shoddy. Makes a neat latch for any screen door. Worth more, costs less than others not so desirable.

Ask your dealer. If he can't supply you, send us his name.

Ask for full information on our hardware specialty line that saves the Carpenter's time.

You will be particularly interested in our line of Wrought Steel Butts.

WATROUS-ACME MFG. CO.
DES MOINES, IOWA

Chicago Sales Office: 180 North Dearborn Street

Teal, is today the Factory Superintendent of the Novo plant.

Backed by this triple confidence in Novo engines (the correct design, the right castings and the best methods of production), Mr. Bement turned on the power of national advertising, full strength.

Contractors and engineers showed an immediate interest. Manufacturers, a little more slowly, but none the less surely began to adopt the Novo engine as standard on their power driven outfits. Business, the very first year, went forward in leaps and bounds and every year since has increased rapidly and consistently. All this Mr. Bement has accomplished practically without a sales force—only one or two men being employed in this capacity.

Even in his advertising Mr. Bement turned from the beaten path. He has succeeded with advertising when, by all precedents, that advertising should have failed. Novo advertising has been heavy in general publications which could have at best, among their readers, very few who would be interested in reliable gasoline power. The force of this appeal has, however, justified Mr. Bement's course and he has seen the Novo engine among the gasoline engine leaders within a comparatively few years. It is claimed that the Novo now runs 80% of all the concrete mixers in America, it has been adopted by such firms as the Goulds Mfg. Co., The Deming Company, and the Bean Spray Pump Company for their power sprayers, the Leader Iron Works for water supply systems and electric lighting plants, and by many other manufacturers of pumps and other power driven machinery.

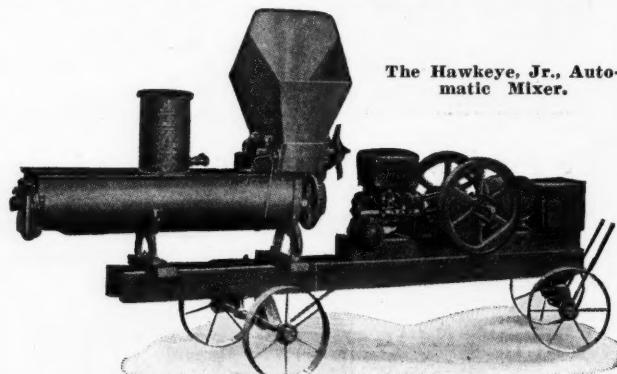
And all the while Mr. Bement is leading the Novo organization on to greater efforts to produce the best possible gasoline engine. To know Mr. Bement and his past is to believe in his success as he interprets success.



The Hawkeye Concrete Mixer

The manufacturers of the Hawkeye line of concrete mixers have recently placed on the market a small continuous mixer which is known by the name of the Hawkeye, Jr., Automatic Mixer. The merits of the Hawkeye mixers need no comment from us. The many satisfied users of this machine offer sufficient recommendation as to its value.

According to the manufacturers' own words, there are only four points to be considered in choosing a mixer: quality,



The Hawkeye, Jr., Automatic Mixer.

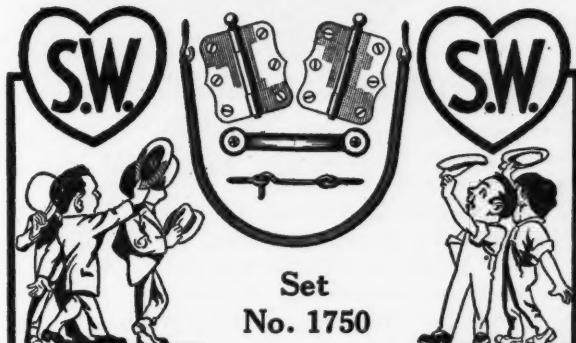
capacity, weight, and price. They have reduced everything but the quality in the production of this small mixer.

This mixer has all the good features of the bigger mixer, and where a small one is needed, the manufacturers, The Farmers Supply Co., Janesville, Iowa, suggest that the buyer investigate their line before making a purchase. The handy regulating device for different consistencies and the hardened worm feeds are as carefully made for this machine as for their larger model.

We suggest that contractors and builders who are considering a mixer, write the Farmers Supply Co., Janesville, Iowa, and get their literature concerning their various lines of concrete mixers.

STANLEY'S

Wrought Steel Screen Door Hardware



Each Set Complete
WITH SCREWS READY TO GO ON
THE SCREEN DOOR

Owners and Builders alike are pleased with the high quality of the hardware and the convenient way it is packed ready for use.

Butts, pull, spring, hook and eye and screws, all of the highest quality of material and workmanship.

They can be furnished in Japan, Antique Copper, Brass or "Stanley" Sherardized rust-proof finish, the proper finish for outside doors.

The doors are removed in fall by merely slipping out the pins and are as readily rehung in spring. Write us for Circular "A". It tells the story.

M A D E B Y T H E
STANLEY S.W. WORKS
NEW BRITAIN CONNECTICUT CHICAGO

A Guaranteed Hatchet



hatchets carry the Simmons guarantee that means your money back if they don't prove satisfactory. They have a keen, true, perfect edge. The head is fastened with the Simmons wedge. It can't come off. Use one and you'll find that

"The Recollection of Quality Remains,
Long After the Price is Forgotten."
Trade Mark Registered.

If not at your dealer's, write us.

SIMMONS HARDWARE COMPANY

St. Louis, New York, Philadelphia,
Toledo, Minneapolis, Sioux City, Wichita.

SIMPLIFIED READING TAPES

Convenient—Time Saving

Read at a glance (without looking forward or back), the number of feet and inches at any place on our tapes. Dietzgen Steel Tapes combine utmost convenience and accuracy. They are built right and so constructed as to make them

"Tapes for Hard-wear"



If your dealer does not carry these time-saving tapes, write to us for Catalogue A and name of nearest dealer.

EUGENE DIETZGEN CO., Manufacturers
MEASURING TAPES DRAWING MATERIALS
SURVEYING INSTRUMENTS

Chicago New York San Francisco New Orleans Toronto
Pittsburgh Philadelphia

6 35 7

Figure
here shows
number of feet
—this reading
shows 35 feet
6½ inches

This is the Improvement
You Have Long Wanted

FRESH AIR AND PROTECTION!

The Ives Window Ventilating Lock



A Safeguard for Ventilating Rooms, allowing windows to be left open at the top, the bottom, or both top and bottom, with entire security against intrusion.

Descriptive circular mailed on application.

THE H. B. IVES CO.

SOLE MANUFACTURERS

NEW HAVEN - - CONNECTICUT

Lumber Dealers—Contractors



A Great
Sale
Stimulant

A Golden Rule transparent handle high-grade pocket knife, with your advertisement presented with your figures and plans will help you to close that contract. Forget those cheap, trashy novelties that no one cares for and that are immediately thrown aside. A good pocket knife with your advertisement will do the work while you are figuring on the next job and will be greatly appreciated by anyone you present it to. Get ready now to bid on those spring contracts. Send for catalog and prices on large or small lots today.

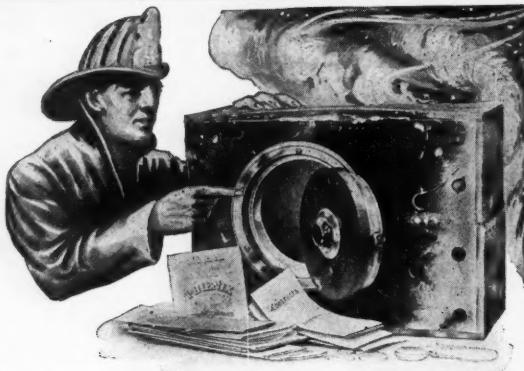
BIG CHANCE FOR AGENTS TO EARN BIG MONEY

Selling the most complete line of guaranteed transparent handle knives and razors with photo, name and lodge emblem, also full line of cutlery.

Write today for catalog and terms.

Golden Rule Cutlery Co., 554 W. Lake St., Dept. 253 Chicago

PROTECTION

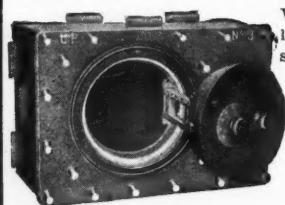


FROM FIRE — FROM BURGLARY

Why risk the danger of losing your valuable papers, jewels, etc., through fire or burglary? Certain valuables must be kept in your home.

Crane's Wall Safes

provide economical insurance against loss. The Crane Safe may be installed in the wall of any room in your home, at any height desired. Made in the strongest combinations of iron and steel. Lined with asbestos lumber. Has heavy, semi-steel door, with powerful, no-sag hinge and non-pickable three-tumbler combination gravity lock. Provides economical protection from fire, water and theft you cannot afford to be without. Recommended by police and fire chiefs everywhere.



Write—right now—for free booklet on Crane Wall Safes, for descriptions and prices. Get this protection.

Crane Manufacturing Co.
Galesburg,
Ill.

Sliding "T" Bevel with Wood Handle

The sliding "T" bevel made by the Southington Hardware Company, Southington, Conn., is now made with wooden handle as well as the steel, as described recently in these columns. No change has been made in the rest of the tool and it still has the handy clamp, the distinctive feature of this Southington tool, as shown in the illustration, for locking the blade in position. The merits of this "T" bevel are being appreciated more and more by up-to-date contractors.



Change in Firm Name

The Witte Iron Works Co. have changed their firm name to Witte Engine Works. Their business for many years has been exclusively engines. In its early history they did a considerable business in the general iron trade, besides making Witte engines.

To make their name more expressive of their present business, besides making it more easily to be remembered, they have made the present change. The change in name, however, is the only change made in the organization. The same people still continue in ownership and management as heretofore, Mr. Ed. H. Witte owning considerably more than the controlling interest.

Add From \$1,000 to \$2,500 to Your Profits This Year

We have a proposition that is unusually attractive to contracting builders of the better sort—men who have the confidence of their clients and who are capable of dealing with a big opportunity in a big way. No interruption to your regular business. Every home owner is a prospect for the—

TUEC STATIONARY
CLEANER.

For Health and Cleanliness

Thousands already in use and every one satisfactory beyond all comparison with cleaning systems of less efficient types. We will co-operate with you in every way and help to get the business in your community. Splendid profits can be earned by you.



If you are looking for an opportunity to increase your net earnings from \$80 to \$250 per month, write us a personal letter at once.

A. J. TICE, General Manager.

THE UNITED ELECTRIC CO.
30 HURFORD STREET CANTON, OHIO

BEAT THE COMING WAVE OF HIGH PRICES



Save 25% to 50% On Building Materials NOW!

This is the year to push building and repairing, and now is the time to save money. Prices on all kinds of materials will jump up, up, the moment peace comes.

Don't wait. Get the lowest mill prices. Send for our book of 3,000 Bargains—see how you can cut building costs by buying direct from us.

Roofing—long-lived felt roofing as low as 95 cents per roll. Our Famous Sunset Brand as low as \$1.25. New 4-light windows of fine quality at 88 cents. 5-panel fir doors at only \$1.36. Fly screens of good, clear lumber that do not come loose and pull apart, at 30c to 60c. The Book is loaded with such bargains. It won't cost you a penny to put us to the test—absolute satisfaction or money back. Prompt shipment and safe delivery guaranteed.

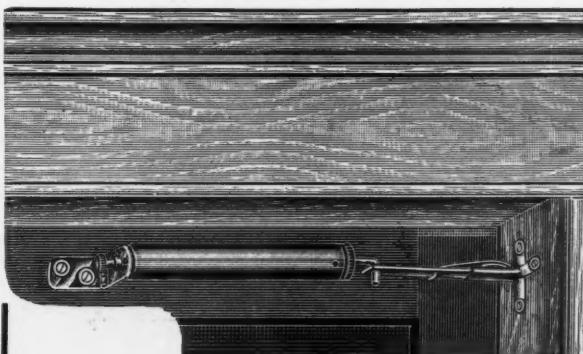
Last year we added a big number of contractors and builders to our list and everyone of them made more money than ever before.

Get This General Millwork Catalog FREE

You can figure any job right from the book. Mill prices on everything you buy and use. This is the time to be alive to your opportunity.

Send along your name and address—a post card will do.

**Webber
Lumber & Supply Co.**
4915 Clyde Street
Fitchburg - - - Mass.



Superior Screen Door Check

30,000 Now In Use

A screen Door Check that is adjustable to close the door fast or slow as desired. It is neat in design, strong, durable, and is thoroughly tested and guaranteed. It is quickly and easily attached. You builders will find none better, it actually outlasts the hinges.

Superior Door Holder

A neat, strong, durable device, operated by foot pressure, to be used on all doors equipped with spring hinges or door checks to hold them all the way open or partly open; will not mar or injure any kind of floor or carpet.

Ask your dealer for Superior Devices. If he doesn't carry them we will send pre-paid the Superior Door Check for \$1.00 and the Superior Door Holder for 75c.

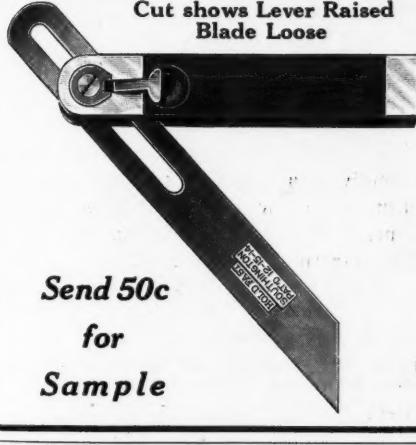
Superior Spring Hinge Co.

136 W. Lake St., Chicago
New York Office: 16 Reade St.



The Superior
Door Holder

Cut shows Lever Raised
Blade Loose



Send 50c
for
Sample

THE "HOLD-FAST" BEVEL Sliding T Bevel with Wooden Handle

This cut shows the new "Hold-Fast" Bevel with the wooden handle. Note the patented device for locking the blade fast.

Made only by the

The Southington Hardware Company
Southington, Conn.

Also Wood Screws, Carpenters' Squares, Try Squares, Mitre Squares, Levels and other tools



GET THE FACTS

Do not be misled by unwarranted claims of quality in saws not bearing the manufacturer's brand but protect yourself and save yourself money by buying a saw like this Simonds No. 8. If we could make special offers or

give cash discounts on a saw of this kind, we would do it, but so much good material and workmanship have been put into the blade and handle that special offers are out of the question. Price 24 or 26-inch, \$1.75.

Sent direct upon receipt of price, when it cannot be obtained from a Hardware Dealer. Every one absolutely guaranteed. If, after trial, you are not entirely satisfied with your purchase the saw can be returned and your money will be refunded.

When you order, ask us to mail you a free copy of our booklet about filing and caring for saws, entitled "Simonds Guide for Carpenters."

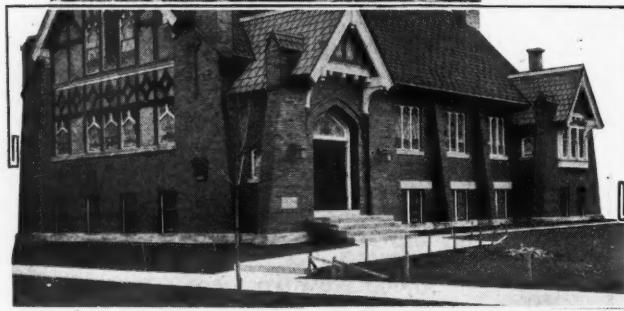
SIMONDS MANUFACTURING COMPANY
FITCHBURG, MASS.

..

..

CHICAGO, ILL.

SLATE FOR ROOFING



Genuine Bangor Slate Roofs for Flat Surfaces

Under the above heading the Bangor Slate Association, Inc., Bangor, Pa., have started an extensive distribution of a complete set of specifications for use over board sheathing and concrete and they seem to have covered the subject very thoroughly, the roofing details showing the method of applying the slate in a very comprehensive manner. These specifications were compiled at the request of many of the leading architects of the country and will no doubt be useful in satisfying a growing public sentiment for a smooth surfaced flat roof and provides for the use of Genuine Bangor Slate of the ordinary thickness. The cost of putting it on is moderate. The cost of upkeep is eliminated. It is therefore claimed to be the most economical roof in the long run.

Flat slate roofs are no experiment. They have proved their efficiency and economy for a generation, as attested to by a prominent architect of Pittsburgh, Mr. F. C. Sauer, who is quoted as follows:

"About 28 years ago I laid the first Flat Slate Roof in Pittsburgh, and the same roof is at the present time on said building.

"After an experience of a generation with Flat Slate Roofs, with no exception had I any complaint of any leakage."

They can be applied as easily as flat gravel or slag roofs, only instead of top dressing them with these materials, the Genuine Bangor Slate are imbedded in a top mopping of

the roofing asphalt, which is especially prepared for this purpose. These roofs can be put on cheaper than tin and at a probable added cost of not over 3 cents per foot almost anywhere east of the Mississippi River and will no doubt enhance the market value of all dwelling houses surfaced therewith. They have stood the test of service on a number of prominent buildings in the Middle West. The number of these roofs have been giving satisfactory service for over twenty-five years. The slate being laid without lap brings the weight of this roof somewhat over 100 pounds lighter than a gravel roof and is absolutely fireproof, and practically means a solid sheet of stone on your building and a surface that cannot be injured by walking on.

The Bangor Slate Association was incorporated five years ago for the purpose, primarily, of stimulating the use of Genuine Bangor roofing and structural slate. The membership has been limited to the actual producers of Genuine Bangor Slate. They first endeavored to protect their product with a certificate which had for years accompanied the bill of lading on all roofing slate shipments and guaranteed the contents of the car to be Genuine Bangor Slate. While the certificate served for a time to protect their product, they realized that they must go a step farther and place the architect and consumer in a position to absolutely recognize the product they specified, and



at the earnest solicitation of a number of architects who were asked for an expression of opinion, they decided to adopt and register in the United States Patent Office a characteristic trademark which could be attached to the reverse side of every piece of Genuine Bangor Slate that left their quarries, and they began, some two years ago, to so trademark all Genuine No. 1 Bangor Slate. They now make the announcement that on and after April 1, 1915, their entire production of all grades will be trademarked and they are prepared to furnish, on request, a list of the many "brands" that are sold as Bangor Slate but are not produced from the Bangor Vein. Some of them actually have quarries back of them—others are merely dealers' names, and while they market no slate and quote no prices, the constituent members are pleased at all times to furnish any information and outline any requirements concerning a slate roof.



A Fire Test

THE FIRE-RESISTING QUALITIES OF METAL CEILINGS COMPARED WITH PLASTER CEILINGS

The Associated Metal Ceiling Contractors of Greater New York conducted a test recently at the Columbia Testing Station, Greenpoint, Brooklyn, by Prof. James S. McGregor, for determining the fire-resisting qualities of metal in comparison with plaster ceilings. The reinforced concrete structure in which these tests are made at Norman Avenue and Monitor Street, had been put in readiness for the occasion, with six different panels, two plaster and four metal ceilings, specified in the following manner:

Plaster on wood lath; plaster on metal lath; metal ceiling

SLATE WE HAVE WHAT YOU WANT

In Roofing Slate. Slate Blackboards

Structural and Plumbers' Slate

SATISFACTION GUARANTEED IN QUALITY AND PRICE

ASK FOR DELIVERED PRICES

J. K. HOWER, Station, C., Danielsville, Pa.

R. J. KICHLIN, Sales Agent

ROOF SLATES

STRUCTURAL SLATE BLACKBOARDS

WHEN WRITING ADVERTISERS PLEASE MENTION THE AMERICAN CARPENTER AND BUILDER

E. J. JOHNSON

38 Park Row New York

Quarry Operator

BLACK, GREEN, PURPLE, RED

Booklet, Samples and Prices on Application

on wood furring; metal ceiling on metal-covered furring; metal ceiling on $\frac{1}{8}$ -inch wood sheathing; metal ceiling on wood furring and plaster boards nailed to wood beams.

At the end of the test, which lasted exactly one hour and fifteen minutes, with a heat of 1,700 degrees, inspectors of the various departments having representatives present, rendered decisions in order of their superiority. No. 1, metal ceiling on plaster boards on wood furring; No. 2, metal ceilings on sheathing $\frac{1}{8}$ inch thick; No. 3, plaster ceiling on wire lath; No. 4, metal ceiling on metal-covered furring; No. 5, metal ceiling on wood furring; No. 6, plaster ceiling on wood lath. The plaster ceiling on wood lath fell twelve minutes after the start of the test.

The committee in charge of the test was W. O. Butler, of the Berger Manufacturing Co.; Charles J. Dodge, of the Garry Iron & Steel Company; J. Randall, of the Brooklyn Metal Ceiling Co., and H. S. Northrop, of Northrop, Coburn & Dodge.

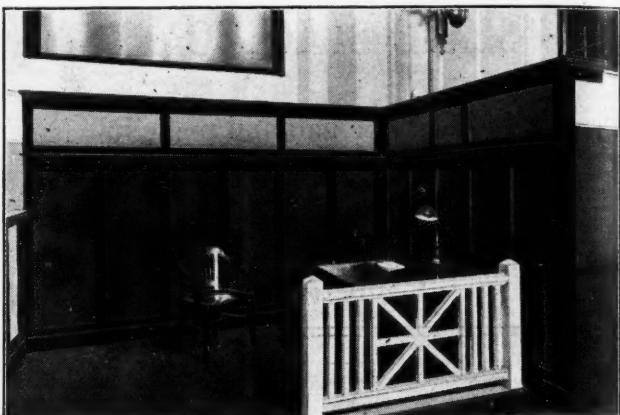
A copy of the official report with full details will be furnished on application to Northrop, Coburn & Dodge Company, 40 Cherry Street, New York.



Grained Wood Panels Now Within the Reach of All

That The Fiberlic Co., of Camden, N. J., has sensed the widespread revival of grained panel work in the home, is quite evident from the introduction, by this firm, of Fiberlic wood-grain panels.

It may be well to state at the outset that "Fiberlic" is made from fibres of an imported root. These fibres are put through a recognized chemical process to remove all resinous



A Very Simple Panel Arrangement Possible with "Fiberlic."

matter, and are then built up under great pressure to any desired thickness.

The manufacturers of "Fiberlic" draw a very pointed distinction between their product and wall boards, which is doubtless due to the basic material used in the former material.

When one compares "Fiberlic" panels with the real grained



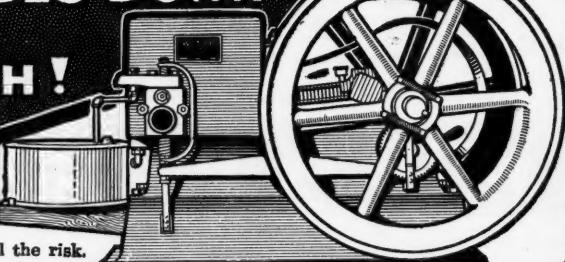
Look at these Prices!

2 H-P, \$34.95; 4 H-P, \$69.75;
6 H-P, \$97.75; 8 H-P, \$139.65; 12 H-P, \$197.00.
Other sizes up to 22 H-P, proportionately low.

Direct from Factory to User!
Why pay two prices for any good engine, or take chances on a poor, or an unknown engine, when the "WITTE" costs so little, and saves you all the risk.

LET ME send you a "WITTE" engine to earn its own cost while you pay for it. It's cheaper than doing without one. I have proved that to thousands who are now WITTE users.
Ed. H. Witte.

ENGINE PRICES DOWN ANOTHER NOTCH!



WITTE ENGINES, Kerosene, Gasoline & Gas

Stationary, Portable and Saw-rig Styles.

Liberal 5-Year Guaranty

CASH OR EASY TERMS.

GET your engine from an engine specialist.

All my life I have done nothing but make engines. **The success of my customers and nothing else, makes my success.** I've simply got to sell better engines. I can't lose money on an engine and make back the loss on something else. My factory is the only one, that started in the engine business 28 years ago, which has come through successfully under the same management with which it started. Only WITTE engine quality has made that possible.

ED. H. WITTE, Main Desk, WITTE Engine Works, 1774 Oakland Ave., Kansas City, Mo.

HOW TO JUDGE AN ENGINE
READ THIS BOOK BEFORE YOU BUY ANY ENGINE IT IS SENT FREE FOR THE ASKING.

V-B All-Steel Wood Chisel

Saves your wooden handle chisel.

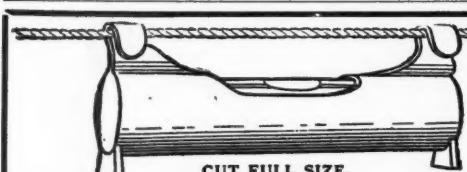
Will not break or take a set. It's all in the taper.

If your Dealer cannot supply you, write us



Size	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$1\frac{1}{4}$	$1\frac{1}{2}$
Price	.50	.55	.60	.70	.80	.90

Vaughan & Bushnell Mfg. Co. - - - 2130 Carroll Avenue, Chicago

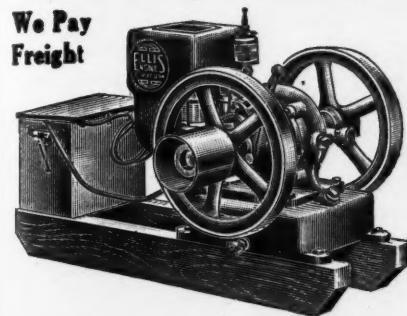


SAVE MONEY Time and Labor by using The Simplex Aluminum Line Level

This Level is designed to meet the requirements of Mechanics in building construction. By using the Aluminum Line Level you can take levels in one-half the time required by the old method of the straight-edge. It weighs only one-fourth ounce and is easily and quickly attached to a line. It can also be used as a Pocket Level. Be sure that you get "The Simplex"—it is the lightest Line Level made and will not sag the line. You save the cost of the Level on the first job. You can get one from your Hardware Dealer for 50c, or we will send you one by mail upon receipt of price.

Our Catalog of Woodworkers' Tools Sent Upon Request.

JOS. WOODWELL CO., 201 Wood Street, Pittsburgh, Pa.



We Pay Freight
All sizes for all purposes. 1 1/2 to 18 H.P. Vertical and horizontal. Guaranteed 10 years

Don't Pay For Your "Ellis" without getting it

Every carpenter or contractor who does not use a reliable engine is paying for the engine without getting it. He pays for it in lost time, and in labor costs. You can buy an Ellis Engine out of two weeks' wages to one workman; and your Ellis will give you reliable service for many years.

Ellis Engines are America's favorite with carpenters, contractors and builders. Very compact in design; light in weight in proportion to power. Easy to operate; no cranking. Run either way; reversible while running. They work successfully on common cheap lamp oil at a fuel cost of

6 cts. for 10 hours

for each horsepower developed. Just the thing for wood-workers, rip-saws, planers, cement mixers, hoists; in fact for every job where power can be used. Write for free book "Engine Facts" giving valuable information and full details of our 30 Days' Free Trial Offer, with opinions of users from all parts of the world.

Ellis Engine Co., 2863 E. Gd. Boulevard, Detroit, Mich.



There is nothing complicated about

Allmetal

WEATHERSTRIP

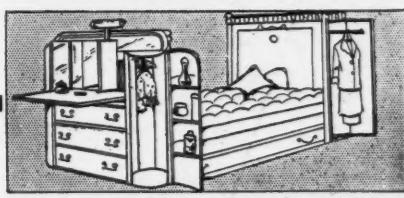
Popular with carpenters and builders because easily installed. Absolutely durable, because made entirely of zinc or bronze.

Put ALLMETAL WEATHER STRIP on all your new buildings
Tell customers to save 20 to 40 per cent of their coal bill—stop drafts and dust—no rattling windows or bothersome storm sash. They'll gladly have allmetal put on. You earn two profits. We quote you manufacturers' prices and show you how to build up a local business on Allmetal Weatherstrip.

Are You the Man?

We have a money-making offer for a hustling carpenter or builder able to take care of the business.

Allmetal Weatherstrip Co.
226 West Madison Street : CHICAGO, ILL.



CABINET BEDS

Save or Add 30% to Your Floor Plan

The All-One Cabinet Bed contains a Wardrobe complete, a double or single Bed, a Writing Desk, a Dressing Table, with Triple Mirrors, a concealed Book and Magazine Rack, a concealed Shoe Compartment, Reading Lights at either end of Bed and a neat Clock. Made in several pleasing designs and finishes.

Write for full information and our Special Proposition to Builders.

THE CABINET BED COMPANY
730 Consumers Bldg. CHICAGO

Mr. Carpenter and Builder

Do you wish to substantially increase your yearly income?

Good! Now we can talk business

PERHAPS in your town or county where you are acquainted and now doing business, our metal weather strip is not represented.

WHY NOT TRY to secure the exclusive right of furnishing and installing our metal weather strip in your territory.

YOU buy the strip on the per foot basis and install same at a handsome profit.

Our weather strip is the easiest sold on the market

Because—It is the strongest and gives greatest protection.

The meeting-rail strips are double nailed and tight. Our spring bronze is extra heavy gauge and straight. NO KINKS.

The All Brass Threshold has conquered the door bottom problem.

When writing for our proposition—tell us something about yourself, also territory desired.

Niagara Metal Weather Strip Co.

737 Main Street - BUFFALO, N. Y.

Diamond Flexible Metal WEATHER STRIPS

are easier to sell than the old style rigid strip because they are so much better in use—and it doesn't take much argument to convince owners why they're so much better. Carpenters and Builders can develop a big business selling these. \$3,000 to \$5,000 a year is quite possible, because every purchaser of Diamond Strips will be so satisfied that he will gladly boost them to other owners and tenants.

Diamond Weather Strips mean so much more added comfort that no prospective purchaser will begrudge their small price.

Where Diamond Strips are used the windows don't stick or bind, and the sash can be removed when necessary without displacing the Flexible Weather Strip. Another thing is that all openings are made air tight and wind, dust, moisture and noise haven't a chance to get in. They have been known to effect an economy of from 20% to 40% in fuel alone, because less heat is required in rooms protected by Diamond Weather Strips.

And it's not only residences that use them. Large public buildings—schools, churches, hospitals, etc., are always in the market for these products. We make all kinds, suitable for all style of windows and doors.

Being made of zinc and highest grade spring bronze, they never rust, and last for years. Can be put in old buildings as well as new ones.

THE
Diamond Metal Stamping Co.
626 Kerr Street, COLUMBUS, OHIO

wood it is extremely difficult to distinguish one from the other—provided, of course, that comparisons are made in similar grains and finish.

Naturally, The Fiberlic Co. is making a great feature of this, because it is almost certain that for this reason many people will prefer "Fiberlic" to the genuine grained wood, because when the cost of the two products is compared, "Fiberlic" is much the cheaper.

The most remarkable feature, however, about this new product is in the grains. "Fiberlic" has the grains right in the wood—right in the surface—reproduced from the natural wood under an exclusive process developed by the company.

Another very important feature about these "Fiberlic" panels is the fact that they lend themselves to practically any desired color scheme, for no matter which grain is used, the user has an unlimited choice in color stains or paints.

The plain or ungrained "Fiberlic" is suggested for walls and ceilings, and after an examination of the samples, one cannot help but get the impression that the material ensures remarkably substantial construction.

We feel sure that The Fiberlic Company will be pleased to furnish samples of its product to any of our readers.

The Cott-a-Lap Window Display Contest

The Cott-a-lap Co., of Somerville, New Jersey, have been conducting a window display contest of their well-known "Cal-co-craft" hardwood finish wall paper. Several designs for windows have been photographed and the pictures sent in to them. This material seems to lend itself very well to window displays and some beautiful effects have been produced.

The success of these various displays led them to start a contest among the dealers handling their line. During April this company offered prizes for the best window display of their goods. The contest closed May first and the various winners are to be announced by May twentieth. The success of this material in window displays is merely an indication of its remarkable beauty when applied to inside decorations. The manufacturers and users say that the most striking effects of hardwood paneling are produced by "Cal-co-craft" paper at a great reduction of cost over wood panels.

It will pay contractors and builders to write to The Cott-a-lap Co., Dept. C, Somerville, New Jersey, asking about the uses of "Cal-co-craft." They will send samples and will be very glad to furnish all the information that is required.

SEE

The many interesting displays

at the

NORTHWEST BUILDING MATERIAL EXHIBIT

LEARN

the latest discoveries and methods in the building world; the most improved ways of construction. All that's new along building lines is on exhibition at this immense Exhibit.

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visit the Northwest Building Material Exhibit. You will be sure to learn many things of value.

Northwest Building Material Exhibit

Entire Fourth Floor, First National Soo-Line Bldg.

Minneapolis, Minn.